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THE LANCET

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Telegrams: LANCET, RAND, LONDON. Telephone: TEMPLE BAR 7228 and 7229.

No. II. OF VOL. I., 1940. LONDON, SATURDAY, JANUARY 13, 1940. Pp. 104—Price 1s.
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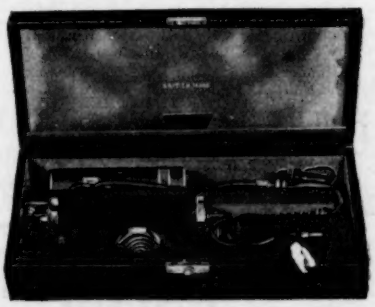

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No. 6072 LONDON: SATURDAY, JANUARY 13, 1940 CCXXXVIII

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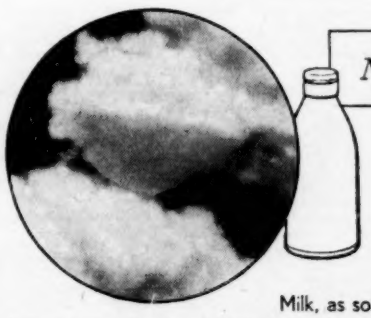

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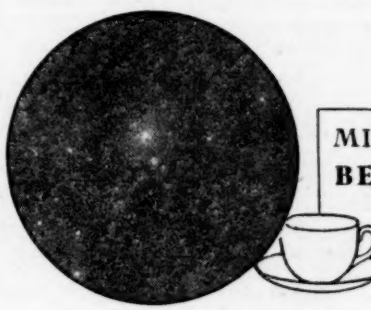

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ADDRESSES AND ORIGINAL ARTICLES

CARDIAC DECOMPRESSION BY MOBILISING THE CHEST WALL

By LAURENCE O'SHAUGHNESSY, F.R.C.S.

MAJOR, R.A.M.C.; SURGICAL SPECIALIST AT A CASUALTY CLEARING STATION; CONSULTING AND THORACIC SURGEON TO PRESTON HALL, AYLESFORD; SURGEON TO THE LAMBETH CARDIO-VASCULAR CLINIC, LONDON.

A STUDY of Versé's (1910) paper and a few simple measurements on the cadaver suffice to show that in the adult thorax the rigid walls of the mediastinum enclose a space very much smaller than might be assumed from the external appearance; the inlet to the mediastinum, which must conduct the trachea and œsophagus besides the great vessels and nerves of the head and neck, measures in the adult only 3–3·5 cm. in the sagittal plane. This is why even an innocent tumour of the mediastinum may so easily exert fatal pressure, especially if its dimensions are suddenly increased by infection of its contents or by hæmorrhage into its interior.

CARDIAC HYPERTROPHY

If the heart is considered as an organ with some of the potentialities of an innocent mediastinal tumour, it becomes obvious that compensation for cardiac enlargement may be more easily effected because extension into the coronal plane is permitted by the more or less yielding substance of the lungs. At the same time, certain phenomena suggest that this natural compensation often reaches its limit, and that death may take place as a result of simple pressure without regard to the intrinsic cardiac lesion. I observed the fatal course of a patient with a congenital lesion of the heart, almost certainly a complete absence of the interauricular septum. The patient was aged 21, and, although a heart lesion had been suspected previously, her cardiac symptoms had only appeared a year before admission to hospital. There was enormous hypertrophy of the heart, and it is difficult to resist the conclusion that during childhood a comparatively yielding chest wall compensated for the increasing hypertrophy, but, as the thoracic cage reached its final development and cardiac hypertrophy continued, symptoms appeared and finally death resulted. It must be emphasised that her heart lesion had been compatible with an active life, so long as the hypertrophy could be accommodated, and that the intrinsic defect was the same on the day of her birth, during her active adolescence, and on the day of her death. Fischer (1930) recalled a similar experience. The cardiac hypertrophy associated with this kind of congenital abnormality, though gross in extent, develops slowly; but there is another kind of cardiac hypertrophy—the so-called idiopathic type—which progresses with great rapidity, so that even the infant chest wall has no opportunity of making adequate compensation and patients die in infancy or early childhood. Abbott (1936) reports an interesting case of this kind. An infant with a familial history of congenital heart-disease died at the age of 7 months. At autopsy the heart occupied more than a third of the thorax and weighed 175 g., the normal weight at this age being 34 g.

Several other observations justify a more frequent consideration of the purely mechanical effects of an enlarged heart. Fischer (1930) has given a very clear illustration of the way in which the hypertrophied heart pushes forwards the whole precordial area in a young patient with a yielding and still elastic chest wall, and I have also had the opportunity of studying similar cases. Obviously this natural means of compensation is not available once the chest wall has attained its full development, and the artificial provision of a yielding præcordium is a logical procedure. Fischer cites Herz (1911) and Attinger (1923) in support of this general principle and describes two relevant cases of his own (which came to autopsy) in which the combination of cardiac hypertrophy and an unusually large sternovertebral measurement appeared to protect the patient against cardiac symptoms. Herz believed that the mechanical resistance offered by a rigid chest wall might at least contribute to the final failure suffered by all patients with a really severe cardiac hypertrophy, whatever its underlying cause.

There are also some relevant data of the surgical relief of dysfunction of a normal heart, when that dysfunction has been caused by purely mechanical factors. Both Sauerbruch (1936) and Nissen (1937) have reported the cure of cardiac symptoms, such as arrhythmia, dyspnœa, and syncopal attacks, by removal of a mediastinal tumour directly pressing on the heart.

DISPLACEMENT OF THE HEART

The detrimental effects of a large pleural exudate on venous return to the right heart are now, thanks to Gräff (1921), well understood, and the long-recognised syndrome of cardiac dysfunction caused by displacement of the heart by a chronic cirrhosis of the lung and pleura is well illustrated by the following experience reported by O'Shaughnessy (1938).

A young woman, who had suffered from phthisis for several years, was seen in consultation, when she was bed-ridden and breathless on the slightest exertion. The disease was limited to the right lung, and, because there had been repeated attacks of hæmoptysis, her physician had on several occasions presented her for thoracoplasty but was always informed that her general condition was too bad for this operation. It was obvious on clinical and radiological examination that the heart had been completely displaced into the right side of the chest. It was decided that her distress was mainly caused by the mechanical handicap so imposed on the heart, and thoracoplasty was immediately carried out. As a result of this operation not only was a large cavity in the right lung permitted to heal but also the heart returned to its normal position, and the patient is now, three years after her operation, fully active and working as a nurse.

The surgical treatment of congenital funnel-breast, which Krauss (1938), of the Sauerbruch clinic, has described, has an obvious bearing on the question of cardiac decompression. In this condition the heart is of normal size but suffers displacement to the left, with torsion of the great vessels at its base. In some cases the course of the venæ cavæ is distorted by this process, and a complete clinical picture of inflow stasis may result, but minor symptoms of cardiac dysfunction are more usual. Sauerbruch has resected the bony chest wall in 10 cases without any operative mortality. He resects the fifth to ninth costal cartilages, together with the left half of the sternum and short segments of the corresponding ribs. The subsequent history of all his patients has been most encouraging. All are now free from heart symptoms, and one patient operated on in 1931 is now an active aviator.

RESULTS OF OPERATION

So long as we are content with the consideration of the mechanical relationship between the rigid chest wall and the hypertrophied heart, the problem is comparatively simple and clear-cut—there are reasonable grounds for attempting to enlarge or to render less rigid the bony thoracic cage, as Morison (1907) long ago proposed. Graham (1929) has reported two operations of this kind, in one of which there was a gratifying immediate result. Levine (1937) describes the good effects of a cardiac decompression for a patient with dysphagia due to an enormous left auricle. This is perhaps the most significant case so far reported, for he had followed the patient for many years before operation, and now, seven years after the operation, she is still under observation and still relieved of her dysphagia. As he remarks, pressure on the left bronchus is commoner in this kind of cardiac hypertrophy, and there must be many patients who might benefit from this comparatively simple procedure if the possibility of a mechanical as well as a functional dyspnœa were taken into account in long-standing mitral disease. The exact method of operation is not yet standardised, but the general method of procedure is illustrated in fig. 1 and in the following case-record. In this patient cardiac decompression has produced immediate and extensive relief of symptoms; an analysis by the patient, a dental student, of his subjective symptoms before and after operation is given.

CASE-RECORD

A dental student, aged 25, with cardiac hypertrophy.

Previous history.—Known to be breathless at 2. Always more breathless than other people in youth. Growing-pains at 7–8. Scarlet fever at 16, followed by breathlessness and confinement to bed for three months. Rheumatic symptoms followed.

Present illness.—At 22 was so well that he started dentistry. Was ill after a year of work—i.e., in 1936. In bed for seven months. Main symptoms were vomiting, palpitation, and some œdema of legs. On digitalis. Was not greatly improved by the year off work, did not go back to classes. Still complained of palpitation, pain in the left side of the chest, and continuous nausea. No œdema of legs.

In April, 1938, it was suggested to him at University College Hospital that a partial thyroidectomy should be done. This idea was abandoned because he was doing well on medical treatment.

On admission, on Aug. 8, 1938, he was spare, and had a high complexion, and was not cyanosed except at the fingertips. No jaundice. Intelligent and good witness, but depressed by inability to get on with work.

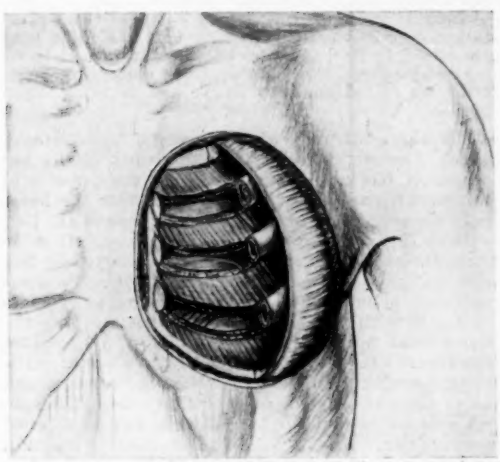

FIG. 1—Costal method of cardiac decompression.

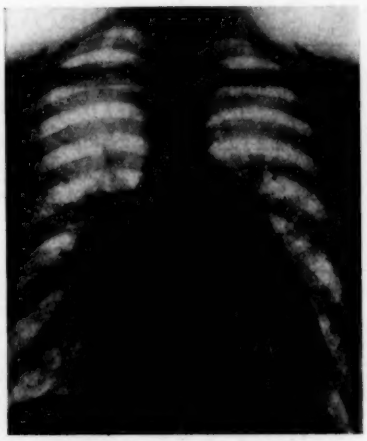

FIG. 2—Radiogram showing enormous heart shadow and gross opacities at hilus of each lung (see case-record in text).

Circulatory system: pulse occasionally irregular, of small volume and rate 116; blood-pressure 108/80; vessel wall soft; and cervical veins distended on hepatic pressure.

Heart: chest asymmetrical, moderate bulge over cardiac dullness on left of sternum of 3rd, 4th, and 5th ribs; diffuse cardiac pulsation, very forcible in 3rd, 4th, and 5th intercostal spaces on left and to a lesser extent on right of sternum; systolic thrill over pulmonary artery; definite systolic retraction of 5th left interspace in front and lower left interspaces at back; apex beat in 6th left space 6 in. out; dull 1½ in. to right of sternum. Murmurs: loud systolic and diastolic bruits at apex; systolic bruit at 2nd right interspace; very loud systolic bruit at 3rd left interspace increasing over pulmonary conus and loud in 3rd and 4th left spaces; systolic and diastolic bruit over lower sternum. A diagnosis was made of mitral stenosis with a complicating congenital lesion.

Respiratory system: poor chest movement on left; expansion 32¾ in.–34¼ in.; percussion note impaired at left base; medium râles at both bases, especially the left. Alimentary system: liver 1½ in. below the costal margin, not pulsatile; no ascites.

Central nervous system: nil abnormal except that tongue deflects to the right and palate moves to the right (? significance). Nothing abnormal found on retinoscopy.

Urine: acid, specific gravity 1·020, no albumin. Blood-urea 22 mg. per 100 c.cm. Urea-clearance test: 110 c.cm. per min.—170 per cent. of normal.

Blood-count: red cells 4,880,000, hæmoglobin 96 per cent., colour-index 1, white cells 6100. Wassermann and Kahn reactions negative.

Radiography: enormous heart shadow; gross opacities at the hilus of each lung and heavy lung parenchyma; no calcification seen (fig. 2). Radioscopy: left oblique, small aortic window; right oblique, aortic bulge visible in barium swallow but no bulge of left auricle.

Electrocardiography: right axis deviation; gross notching of R waves in leads II and III; occasional premature auricular contractions.

Operation (Sept. 2, 1938).—Under general anæsthesia with ether and oxygen the third to fifth left costal cartilages were exposed by a semilunar incision with its base on the lateral side. The cartilages were excised together with the perichondrium, and a subperiosteal excision of 2 or 3 cm. of the corresponding ribs was also done.

The internal mammary vessels were now exposed,

ligature, and divided, and, after separation of the soft tissues from the body of the sternum, piecemeal removal of this bone as far as the middle line was carried out.

The pericardium was exposed by stripping back the mediastinal pleura, and, after identification of the phrenic nerve and the vagus stem, the arch of the aorta and the recurrent laryngeal nerve were identified. The ductus arteriosus was inspected and found to be obliterated.

The wound was closed in layers and the immediate recovery was uneventful.

Subsequent progress.—Pleural effusion developed on left side and was gradually absorbed. Slight hæmorrhage from upper part of the wound a fortnight after operation ceased without interference. Patient allowed to wash himself a month after operation and to get up a week later. He could breathe more easily than before and could sit comfortably for any length of time reading, whereas before the operation the jarring to his frame of every heart-beat made sitting down unbearable for more than a few minutes.

Discharged on Oct. 24, 1938.

Re-examination (Dec. 16, 1938).—Brought the accompanying analysis of his symptoms.

His improvement has been progressive since his discharge from hospital. He has a conspicuous malar flush, and his wound is soundly healed.

Heart: well-marked pulsation as before into decompressed area; preliminary description as before; systolic thrill over pulmonary artery; first mitral sound accentuated and slapping; loud systolic murmur, audible in all areas of the entire thorax, front and back, maximal and exceedingly rough over the pulmonary artery; roaring mitral diastolic murmur; soft to-and-fro murmur at lower end of the sternum (not aortic); blood-pressure 110/80.

Chest: few rhonchi at both bases.

PATIENT'S ANALYSIS OF SYMPTOMS

BEFORE OPERATION	AFTER OPERATION
General Health	
Discomfort due to vibration; restless; remained active to escape from the throbbing.	Improved; more settled and sedentary
Weight	
9 st.	9 st. 6 lb.
Complexion	
Flushed cheeks, pale ground; on fatigue cheeks and lips purple, grey ground	More general colour
Neck	
Pulsation on either side of larynx after exercise	Pulsation less violent
Chest	
A "choked" feeling usually present; breathing shallow, and often difficult; vibration; pains present a day after strain: (*a*) sharp pain, lasting 4 sec., 1 in. above nipple; (*b*) dull pains round heart and in region of left shoulder blade; (*c*) sharp continuous pain beneath 8th rib, 5 in. left of middle line	"Choked" feeling occasionally present; breathing easier and deeper; vibration absent; no pains
Abdomen	
A sinking feeling with each extrasystole, 2 in. above navel; a sensitive area 2 in. above navel; occasional pain 4 in. left of navel	Extrasystoles just perceptible in abdomen; area less sensitive; pain absent
Feet	
No general swelling; swelling of veins round ankles	As before
Urinary System	
Normal	Normal
Exercise	
A slow walk of half a mile caused no discomfort; more than twenty steps caused difficulty in breathing; after two hours of light laboratory work, part sitting, part standing, I was obliged to lie up for half an hour; too much exercise caused difficulty in breathing, trembling, and occasionally partial blindness in both eyes, with vomiting	A slow walk of half a mile causes ordinary breathlessness, which disappears after ten minutes' rest; after two hours of standing and sitting at intervals I feel tired but not distressed
Breathing	
Shallow, often difficult; on taking exercise expiration became short and powerful; inspiration was difficult, irregular, and a conscious act	More normal. On taking exercise I become breathless in the ordinary manner; inspiration causes little discomfort; coughing rather painful
Rhythm of Heart	
Hard vibration with a heavier throb every ten to twenty beats; eliminated by gentle exercise	Vibration absent; fewer "missed beats," which are now hardly noticeable
Digestion	
Before meal—hunger with a "plopping" sensation in stomach with every beat; swallowing difficult. After meal—a heavy condition after a very small meal; it was impossible for me to eat an adequate amount of food	Good appetite; swallowing eased; I can eat a normal meal, and I do not feel hungry during intervals between meals
Headaches	
About once a week, usually two or three hours after exhaustion, in the following order: (*a*) dead feeling at back of neck; (*b*) pain extending over head and down spine; (*c*) throbbing of veins in neck; (*d*) burning pain in eyes, especially in electric light; (*e*) violent, irregular beating of heart; (*f*) the headache lasted five to seven hours; aspirin was useless; warm water taken frequently seemed to ease symptoms, especially after urination; as the pain eased, I would fall into a deep sleep	Since the operation I have had no headaches of this nature; those I have had have been slight and eased by two aspirin tablets

MEDIAN STERNOTOMY

I have on several occasions had most satisfactory results from median sternotomy (fig. 3A) for the relief of urgent mediastinal pressure-symptoms caused by an aneurysm of the aorta. An adaptation of this operation, which might be useful in cases of cardiac hypertrophy, is illustrated in fig. 3B. No originality is claimed for this method, because from time to time a superior sternotomy or an inferior

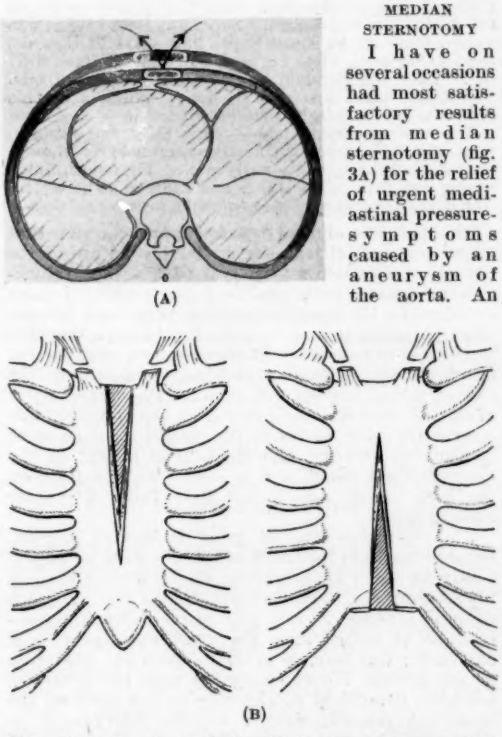

FIG. 3.—Sternal method of cardiac decompression: (A) diagram of transverse section; (B) anterior aspect.

sternotomy have been performed in such cases. However, a combination of the two does not seem to have been attempted, and from cadaver experiments it seems that a very great increase in the capacity of the thoracic cage can be obtained. It would be most essential to leave an interval of at least three months between the two interventions, so that the first wedge may be organised before further mobilisation of the mediastinum is produced.

FIBROUS PERICARDIUM

When we come to consider either the beneficial or maleficent effect which the fibrous pericardium may exert in cases of cardiac hypertrophy, we immediately find a chaotic discordance of opinion. Felix (1925 and 1930), who studied the function of the fibrous pericardium in the dog with acute and chronic artificial valvular defects, concluded that an intact pericardium was probably useful in most cardiac lesions, except mitral incompetence, when the operation of *Spaltung* of the membrane seemed to increase the working efficiency of the heart. He did not study the hypertrophy associated with aortic lesions of long standing. Rössler and Unna (1935), working for the most part on the heart-lung preparation, but also in six experiments on the complete animal, concluded that *Spaltung* of the pericardium was not likely to assist the function of the hypertrophied heart, whatever the underlying lesion. Rössler and Unna did not carry out any long-term experiments, and indeed their method of providing the pericardium with a zip-fastener, though highly ingenious, was hardly adapted for this purpose. Further study of the reports soon discloses other conflicting views, but for the most part only acute experiments on the isolated heart or the heart-lung preparation are described. Even when the intact animal was used, as in the experiments of Blalock and Harrison (1937), only acute experiments were done, which provide a very inadequate basis of comparison with cardiac hypertrophy as a sequel to long-standing valvular disease.

Faced with this confusion on the experimental side, if it were not for certain other evidence presently to be discussed, there would hardly seem to be an adequate basis for attempting symptomatic relief of the enlarged heart by an intervention restricted to the pericardium; but, at least in my view, this evidence is sufficiently strong to warrant the trial of pericardial *Spaltung* in selected cases.

An observation of the function of the fibrous pericardium was made by O'Shaughnessy and McCunn (1935) in the racing greyhound. Here hypertrophy, as in man, is a gradual process, and symptoms, when they arise, give evidence of impairment of function of the right heart. On finishing a race there is much irregularity both of pulse-rate and respiration-rate, the tongue exhibits a dark cyanosis, and the dog takes appreciably longer than normal to recover from his exertion. In these dogs there is clinical and radiological evidence of enlargement of the heart, and at operation the pericardium is so tightly stretched over the heart that to incise it without wounding the ventricle presents the same technical difficulty as the incision of the dura mater over an œdematous brain. Once the pericardium is opened, the left ventricle bulges out into the left pleural space, and it seems reasonable to suppose that the right heart is in this way placed at a better mechanical advantage. The following extracts from our paper are relevant.

The operation.—Under general narcosis the left chest was entered in the sixth intercostal space and suitable retraction gave an excellent exposure of the heart and pericardium. On opening the chest, the pneumothorax factor was controlled by means of the Tiegel-Henle positive pressure apparatus. In all cases it was noticed that the heart was greatly enlarged and the pericardium was tightly stretched over it. It was difficult to seize and pick up the pericardium. In the normal dog this manœuvre can be carried out with the greatest ease. The pericardium was picked up ventral to the phrenic nerve and widely incised over the left ventricle. The left ventricle was seen to bulge into the left pleural space. The pericardial incision was left open. The incision in the chest wall was closed in layers over a fully inflated lung. Three animals have been operated upon. The first and third made rapid and uneventful recoveries, and their subsequent progress is appended.

Protocol 1.—Brindle dog, aged 2½ years. Clinical and radiological evidence of cardiac dilatation and right-side failure. Distress, dyspnœa, cyanosis, and staggering gait after racing. Dog unfit for racing. Aug. 15, 1934: operation at Royal Veterinary College.

Jan 16, 1935: trial over 525 yards with three other dogs. Heavy going. The dog was untrained, but managed to complete the course with less distress than before operation. This dog was "unraceable" before operation. In this trial he was handicapped by a recent stitch abscess, and his time was 36 sec.

In June, 1935, an opportunity arose to put both dogs under training conditions. Sept. 25, 1935: trial 525 yards, time 35·68 sec. He ran with No. 2 dog. He slowed a little in the last 40–50 yards but finished without distress and with a pink tongue. Oct. 2, 1935, trial 525 yards, time 34·86 sec., with No. 3 dog. Finished exceptionally well.

Protocol 2.—Fawn dog, aged 4½ years. It was possible to give this dog a trial previous to operation. Distance 525 yards. There was marked distress, dyspnœa, and cyanosis. Time 35·8 sec. Clinical and radiological evidence of dilatation.

Jan. 24, 1935: operation at Royal Veterinary College. Good recovery. This dog put on a lot of fat during convalescence. Sept. 15, 1935: trial 525 yards, time 35·53 sec.; Sept. 25: trial 525 yards, time 34·60 sec.; Oct. 2: trial 525 yards, time 34·87 sec. This dog finished very strong in these trials. The third trial was run in heavy going and this accounts for the slight increase in time.

The trainer under whose care they are reports, Sept. 25: "No. 2 dog is the stronger finisher, although they both finish exceptionally well. They both finish strong and firm on their legs and keen to go on again. Neither are any more distressed than are normal dogs."

There are also clinical data to support the view that under some conditions the unyielding nature of the fibrous pericardium may play a part in the dysfunction associated with cardiac hypertrophy. I have encountered the same variation in tension of the sac, when operating in man, on exposing the hypertrophied heart to attach a graft. I have on one occasion carried out deliberate incision of the fibrous pericardium in a case of mitral stenosis with considerable hypertrophy of the left auricle. Recovery from the operation was uneventful; but, although the patient regained some measure of activity, the mechanical benefit of the operation was small, and probably an operation on the bony chest wall would have been of greater assistance.

The operation was of great incidental interest, because, perhaps for the first time, it gave an opportunity for study of the human left auricle in a state of fibrillation. In normal circumstances the left auricular appendage is only just visible when the pericardium is incised after the usual left transpleural exposure; but here, so enormous was the dilatation of the auricle, the appendix lay over the ventricle, reaching two-thirds of the way to the apex of the heart. A possible danger of this intervention is illustrated by my experience in another case of *Spaltung* of the pericardium, in which the patient

made a good immediate recovery but died four days later of an acute suppurative pericarditis.

The mechanism of cardiac compression (*Herztamponade*) has often been studied in cardiac wounds, and, because the mechanism of this particular form of heart-failure is so clearly understood, it might be reasonable to consider other and more obscure forms of failure in the light of our certain knowledge in this respect. Thinking along these lines it is interesting to speculate on the part played by the fibrous pericardium in acute cardiac dilatation and to consider whether the intact pericardium, far from limiting dilatation of the heart in a beneficent sense, as many physiologists have assumed, may not hasten cardiac failure. Clearly, further experimental work must be done, and a more detailed study of existing reports must be made, before incision of the pericardium, whether as a deliberate intervention or as an emergency operation, can be listed as a rational surgical procedure. The possibilities are to be explored with caution and only when there is an established, incurable, and progressive heart lesion.

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BLOOD-CULTURES AND SELECTION OF MEDIA

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BACTERÆMIA is common in the acute stages of many infections, and blood-culture is consequently an important diagnostic procedure. Many types of organisms may be isolated in this way, and, since they may vary considerably in nutritional requirements, the selection of suitable media for routine purposes is particularly important. Much attention has been directed to blood-culture technique and a wide range of media has been recommended for this purpose. Butler (1937) in an excellent monograph criticised the simple methods and advocated a relatively elaborate technique. She advised strict precautions in the sterilisation of the syringe and skin of the patient to avoid contamination and inoculated 1–4 c.cm. of blood into the following media: tryptic broth (Hartley's modification) 100 c.cm.; anaerobic tryptic broth, 15 c.cm.; glucose broth with trypsin (Wright), 7–8 c.cm.; and nutrient agar, 12 c.cm. As a result the proportion of positive tests in many cases was raised from 15 to 20 per cent.

It has also been claimed independently that the use of two substances, liquoid and saponin, has greatly enhanced the value of blood-cultures. Liquoid (sodium polyanethol-sulphonate) has been extensively used on the continent with successful results (Massa and Battistini 1934, Niesner and Volencova 1934). Its main value is considered to be due to an anticoagulant action and to the inhibition of the bactericidal activity of the blood. Von Haebler and Miles (1938) confirmed these observations but found that in a concentration of 0·1–0·2 per cent. of liquoid the meningococcus was inhibited; they obtained satisfactory results with many organisms with a concentration of 0·03–0·05 per cent. Hoare (1939), however, found that in a 0·08 per cent. concentration of liquoid anaerobic streptococci did not grow as well as in a similar medium containing trypsin.

The other substance, saponin, was recommended by Sgalitzer (1935). Working mainly with *Streptococcus viridans*, he found that media containing saponin and liquoid were the most satisfactory, and that of the two saponin gave the better results. The special value of saponin in the cultivation of *Strep. viridans* was also demonstrated by Elliott (1938), who compared the value of citrate broth and saponin broth in blood-cultures from 65 patients immediately after dental extraction and from 4 cases of infective endocarditis; saponin broth gave a much greater percentage of positive cultures than did citrate broth.

In view of these observations and the increasing complexity and multiplicity of media recommended for blood-cultures, it was decided to examine the relative value of various media under standard conditions, to determine the most satisfactory series for routine investigations.

TECHNIQUE

Blood-culture.—The following method was used for the routine collection and culture of blood. An ordinary 10 c.cm. Record syringe with a medium bore needle was sterilised in the laboratory by repeated aspiration of cotton-seed oil heated at 125–130° C.; after cooling, the oil was removed from the syringe by treatment with ether, and the syringe then placed in a sterile test-tube. Treatment with ether was adopted because it was found that, if not removed, globules of residual oil in the syringe tended, when mixed with the blood, to present the appearance of bacterial colonies in plate culture.

The patient's arm was exposed and the region of the antecubital fossa washed well with soap and water after the application of a rubber tourniquet to the upper arm; the region was next flooded with ether. Venepuncture was then carried out with minimal manipulation, 10 c.cm. of blood being withdrawn and distributed rapidly at the bedside in portions of 2 c.cm. to each of the following media: glucose trypsin broth, 6–8 c.cm.; saponin broth, 10 c.cm.; Robertson's meat broth, 10–15 c.cm.; Hartley's broth, 50–70 c.cm.; liquoid broth, 5 c.cm.; and liquoid solution, 0·4 c.cm. Liquoid broth was used in the first forty blood cultures and liquoid solution in the remainder. The media were handled by an assistant, and the mouths of the tubes and flasks were invariably flamed. These precautions were carried out because it was found that contamination not infrequently occurred if less care was taken.

On returning to the laboratory, the glucose trypsin broth and saponin broth were mixed with agar and

plates were poured. All the media were then incubated at 37° C. under ordinary atmospheric conditions. In cases of suspected undulant fever, the broth cultures were placed in an atmosphere containing 20 per cent. CO_2. The media were examined daily, and, unless they were positive on the first day, routine subcultures were made from the fluid media every second day. Colonies from the plates were subcultured as soon as they were recognised. The cultures were kept under examination for a total period of ten days.

Preparation of media.—The following were important features in the preparation of the various media:

Glucose trypsin broth consisted of nutrient broth with 1 per cent. glucose to which was added filtered Liquor Trypsini (Allen and Hanburys) in the proportion of one of liquor to ten of broth.

Hartley's broth was prepared in the usual manner without any special modification.

Robertson's meat broth, adjusted to a pH of 7·5, was prepared by the addition of minced bullock's heart to peptone broth.

Saponin broth was prepared by the addition of sodium citrate to nutrient broth to make a 2 per cent. solution. White saponin (British Drug Houses) was added to make a concentration of 0·1 per cent., and the whole was sterilised by steaming on three successive days for half an hour and then made up in amounts of 10 c.cm. After the addition of 2 c.cm. of blood the final dilution of saponin was 0·08 per cent.

Liquoid broth was prepared by adding 0·05 per cent. of liquoid (Roche) to 5 c.cm. amounts of nutrient broth, and the whole was sterilised in the autoclave. After the addition of 2 c.cm. of blood the final dilution of liquoid was 0·035 per cent., this percentage being in accordance with the work of Von Haebler and Miles (1938).

Liquoid solution, as prepared by Massa and Battistini (1933), consisted of 0·4 c.cm. of a 1 per cent. solution of liquoid in normal saline, sterilised by autoclaving. On the addition of 2 c.cm. of blood the final dilution of liquoid was 0·17 per cent.

The investigations have been carried out by two methods: routine blood-cultures on patients, and the preparation of artificial blood-cultures in the laboratory with organisms recently isolated from human infections.

RESULTS OF ROUTINE BLOOD-CULTURES

Of 160 routine blood-cultures 33 have produced positive results; from a few patients several successful cultures were made, and the number of patients giving a positive result was 22. Several species of organisms were isolated, the commonest being *Strep. viridans* and *Staphylococcus pyogenes* from cases of infective endocarditis and acute osteomyelitis respectively. The complete range is given in table I.

TABLE I—ORGANISMS ISOLATED FROM ROUTINE BLOOD-CULTURES (33)

Staph. pyogenes	12
Strep. viridans	11
Non-hæmolytic streptococcus	2
Pneumococcus	2
Hæmophilus para-influenzæ	2
Bact. coli (one atypical)	2
Strep. hæmolyticus	1
Bact. typhosum	1

Very diverse results were given with the different media and depended largely on the infecting organism. The number of successes given by the different media is given in table II.

Staph. pyogenes was cultivated mainly from cases of acute osteomyelitis; positive results were obtained in 12 instances. Irregular results were given by the different media; in 6 cases positive results were obtained with all media, but in the others some variation was found. Although all media gave satisfactory results, in no instance was any medium entirely successful.

Whereas the saponin plate eventually gave a high percentage of positives, the appearance of colonies was often delayed for twenty-four to forty-eight hours as compared with the glucose trypsin plate, even though there was a heavy inoculum as judged by the number of colonies finally obtained. The saponin medium was therefore less satisfactory than the glucose trypsin medium for the cultivation of *Staph. pyogenes*.

TABLE II—RESULTS GIVEN BY THE DIFFERENT MEDIA WITH DIFFERENT ORGANISMS

Organism	Saponin		Hartley		Robertson		Liquoid		Glucose trypsin	
	PT	PR	PT	PR	PT	PR	PT	PR	PT	PR
Staph. pyogenes	12	10	11	9	11	9	9	7	12	10
Strep. viridans	11	11	11	9	9	7	10	6	11	4
Non-hæmolytic streptococcus	2	2	2	1	2	1	1	0	2	0
Bact. coli	1	1	1	1	1	1	1	1	1	1
Ditto atypical	1	1	1	0	1	0	1	0	1	0
Pneumococcus	2	1	2	2	2	1	2	2	1	0
Hæmophilus para-influenzæ	2	2	2	2	2	2	2	0	2	1
Strep. hæmolyticus	1	1	1	0	1	1	1	1	1	0
Bact. typhosum	1	1	1	1	1	1	1	1	1	1
Total	33	30	32	25	30	23	28	18	32	17

PT = possible total; PR = positive results

Strep. viridans was isolated on 11 occasions, in each instance from a case of infective endocarditis. Saponin broth gave the most satisfactory results, being the only medium to be positive in all cases. Liquoid and glucose trypsin broth gave disappointing results, being positive in 6 out of 10 and 4 out of 11 cases respectively. Another advantage of the saponin medium was that growth was invariably detected earliest in the saponin plates; and, since the saponin lyses red blood corpuscles, the colonies could be detected without much difficulty.

Miscellaneous organisms have occasionally been isolated from such conditions as infective endocarditis, pneumonia, meningitis, and pyelitis. The most satisfactory medium was again the saponin plate, and the poorest results were given by the glucose trypsin plates. In only 3 instances did growth take place in all media, the organisms isolated being *Bact. coli*, *Bact. typhosum*, and pneumococcus. The atypical coliform was isolated from a severe case of pyelitis; the same organism, which grew poorly on the ordinary media, was also obtained from the urine.

RESULTS OF EXPERIMENTAL BLOOD-CULTURES

In view of the irregular results given by the different media in routine work, attempts were made to confirm these by cultures artificially prepared in the laboratory by the addition of organisms, isolated during this work, to (1) broth and (2) blood.

Broth.—Decimal dilutions in broth were made of different organisms, recently isolated from human infections, in 10 c.cm. samples; 2 c.cm. quantities of samples, containing what were considered to be appropriate dilutions, were then added to each of the various media in a similar way to the technique adopted for routine blood-cultures. The final cultures were incubated at 37° C. and examined daily. Many tests

were carried out with each organism, and representative results have been given in table III. In the absence of blood, saponin gave comparatively poor results and was usually inferior to the glucose trypsin broth. Except with the meningococcus, liquoid gave good results.

Blood.—To obtain a more accurate comparison with routine blood-cultures, the various organisms were added in appropriate numbers to 10 c.cm. samples of normal citrated blood, freshly collected ; after standing at room temperature for a short time, 2 c.cm. quantities of the various inoculated samples of blood were added to each of the different media and then incubated at 37° C. Representative results are given in table IV. The presence of blood greatly enhanced the value of saponin for the cultivation of most of the organisms, particularly *Strep. viridans*, but in the case of *Staph. pyogenes* it was much inferior to the glucose trypsin. In many experiments with *Strep. viridans* the saponin plate was the only medium to give a positive result in all cases, and the liquoid medium gave better results than were expected from the routine tests.

DISCUSSION

To obtain the most satisfactory results from blood-cultures, two important factors have to be considered : attention to strict asepsis, and the use of a wide range of media. Failure to observe strict asepsis almost invariably leads to contamination. The use of several media increases the risk of airborne contamination, owing to the longer time required to seed the various media and, since cultures often have to be collected in busy wards, this risk should not be ignored. In the early stages of this work contaminants were obtained from time to time,

TABLE III—RESULTS OBTAINED BY INOCULATION OF BROTH CULTURES INTO THE VARIOUS MEDIA

Organism		Saponin	Glucose trypsin	Robertson	Hartley	Liquoid solution (0·17 per cent.)
Staph. pyogenes	A	++	+++	+	+	+
	B	+ (12)	+ (20)	+	+	+
Strep. viridans	A	+ (7)	+ (37)	+	+	+
	B	0	+ (6)	+	0	+
Strep. hæmolyticus	A	+ (6)	+ (29)	+	+	+
	B	0	+ (6)	+	0	+
Pneumococcus	A	+ (93)	+ (113)	+	+	+
	B	+ (12)	+ (1)	+	0	+
Meningococcus	A	+ (5)	0	+	−	0
	B	0	0	+	−	0

+ ( ), positive, with the number of colonies (in parentheses); 0, no growth ; −, medium not used.

and precautionary measures were made rigorous ; greater care was taken in cleaning the patient's arm, and a trained assistant was always available to handle the media. As a result the later cultures were rarely contaminated.

Recent work has confirmed the view that simple media alone are unreliable for blood-cultures, but it is obviously impossible in routine work to use every type of medium recommended for this purpose. The selection of a convenient range is therefore important. Care should be taken to include all media that offer special advantages for organisms likely to be cultivated.

The results of this investigation, routine and experimental, indicate that for general work the following types should be used : saponin broth + agar, glucose trypsin broth + agar, Robertson's meat medium, and Hartley's broth. The use of the meat medium besides Hartley's broth is recommended when micro-aerophilic or anaerobic organism are suspected ; this medium is then incubated under appropriate atmospheric conditions.

TABLE IV—COMPARISON OF THE VARIOUS MEDIA WITH ARTIFICIALLY PREPARED BLOOD-CULTURES

Organism		Saponin	Glucose trypsin	Robertson	Hartley	Liquoid solution (0·17 per cent.)
Staph. pyogenes	A	+ (51)	+ (81)	+	+	+
	B	+ (2)	+ (14)	+	+	+
Strep. viridans	A	+ (181)	+ (26)	+	+	+
	B	+ (3)	0	+	+	0
	C	+ (13)	+ (5)	0	0	+
	D	+ (37)	+ (3)	0	0	0
Strep. hæmolyticus	B	+ (98)	+ (23)	+	+	+
	B	+ (61)	+ (13)	+	+	+
Pneumococcus	A	+ (88)	+ (130)	+	+	+
	B	+ (12)	+ (10)	+	+	+
Meningococcus	A	+++	+++	+	−	0
	B	+ (39)	+ (22)	+	−	0

The saponin medium gave positive results in 30 out of 33 possible positive cultures. This compares favourably with the other media, particularly glucose trypsin broth and the liquoid media, which yielded 17 positive results out of a possible 32 and 18 out of a possible 28 respectively. In particular, the saponin medium proved of great value in the isolation of *Strep. viridans*. On no occasion when this organism was isolated from the blood did the saponin medium give a negative result ; further, growth was apparent as a rule sooner in saponin than in the other media.

Liquoid has given somewhat disappointing results, both incorporated in a broth and as a saline solution ; in no type of infection did it show any particular superiority over the other media. In view of the observations of von Haebler and Miles (1938) it is possible that the concentration used in many of these tests was too high ; they found however that *Strep. viridans* and *Staph. aureus* grew well in 0·2 per cent. dilutions of liquoid. There was therefore no indication for its continued use in routine work.

The glucose trypsin broth appears superficially to be a comparatively poor medium, having in all cases given a lower percentage of positive results than any of the other media. There was, however, an important advantage : it yielded, on several occasions, an early growth of *Staph. pyogenes*, preceding the other media by twelve to forty-eight hours ; for this reason its use in routine cultures is recommended.

The experimental results have, in the main, confirmed those obtained from the routine investigations. A point of interest was that, whereas saponin gave inferior results when the dilutions were made with nutrient broth, the reverse was true when blood was used.

SUMMARY

Results obtained from routine and experimental blood-cultures indicate that a convenient range of media for routine work consists of saponin broth, glucose trypsin broth, Hartley's broth, and Robertson's meat medium, the two former being added to agar to give a solid medium. No evidence was obtained that the addition of a liquoid medium offered any further advantages.

Continued at foot of next page

CHOLECYSTOCHOLEDOCHOSTOMY

AN ATTEMPT TO PRESERVE A FUNCTIONING GALL-BLADDER WHEN OPERATING

By B. O. C. Pribram, M.D. Berlin, L.R.C.P.E.
LATE PROFESSOR OF SURGERY IN THE UNIVERSITY OF BERLIN

The gall-bladder undoubtedly has some function, and our research concerning the so-called recurrent troubles has convinced us that some of these complaints undoubtedly arise from a lack of a functioning bladder. At the international congress held at Vichy in 1932 the main subject of discussion was the sequels to cholecystectomy. Pathologists, physicians, and surgeons made valuable contributions regarding the function of the gall-bladder. In summarising the results we can say that cholecystectomy does not lead in all cases to symptoms of a lack of function, but we cannot tell why in some cases the patient may undergo the removal of the apparently still functioning gall-bladder without showing the slightest symptoms, whereas in other cases such symptoms undoubtedly appear. We can understand these individual differences in cases where the organ has gradually lost its function through inflammation, and we may satisfy ourselves with the explanation that the remaining hepatobiliary system has by degrees more or less adapted itself to this loss. Undoubtedly the benefit of removal of an inflamed gall-bladder at present surpasses by far the disadvantage of the lack of that organ, the more so since it has ceased in most cases to function properly. I think it necessary to emphasise this, to avoid any misapprehension regarding what follows. On the other hand, every attempt to preserve the organ is justified in cases where the wall of the gall-bladder is not destroyed by inflammation, especially when stasis of bile is the main cause of the trouble. Such stasis may be due to anatomical anomalies—e.g., a long and tortuous cystic duct with kinks—or to ptosis of the gall-bladder, causing difficulty in the physiological emptying.

It is well known that conservative methods are hardly ever successful, and that, on the other hand, cholecystectomy, which has been tried repeatedly, has proved a failure. In some cases anastomosis has been performed between the gall-bladder and the stomach or between the gall-bladder and the duodenum. These operations, which have proved very helpful in cases of inoperable obstruction of the common duct—e.g., carcinoma of the papilla—have not been satisfactory in simple biliary stasis in the gall-bladder. The most logical operation in such a case, where the stasis is due to an obstacle in a bent cystic duct, would be a wide anastomosis between the gall-bladder (Hartmann's pouch) and the common duct—i.e., cholecystocholedochostomy. By this operation the obstacle in the cystic duct would be overcome and a free outflow of bile ensured. Thus, by not affording direct communication with the intestines, the sterility of the bladder is preserved or at least the bacteriological medium not altered. At the same time conditions for the healing of slight inflammation are improved.

CASE-RECORD

The first case in which I attempted this new technique—a simple case of stasis of the bladder—was a remarkable success. The history is sufficiently interesting to justify giving it in full.

A woman, aged 34, had suffered for years with pain under the right costal arch, nausea, and vomiting. She had been operated for gall-stones by another surgeon two years previously. Nothing abnormal was found except a spastic contraction of the pylorus. For this reason a pyloromyotomy—i.e., a cutting of the muscle of the pylorus, as in Ramsted's operation—was performed.

After the operation, not only was there no improvement but also a turn for the worse was observed, manifested by a feeling of oppression, vomiting, and loss of weight. The patient was rendered incapable of carrying on her professional duties and was sent to St. Hildegard's Hospital. She was very much reduced in weight and told us that for almost a year she had not been able to eat anything without a feeling of fullness shortly afterwards. She showed an intolerance of all food, not only of fat but also of meat and carbohydrates of all kinds. She could take only small quantities of food and remained in bed nearly all day. We found a distinct tenderness under the right costal arch. The suspicion that the complaints were due to ptosis of the stomach was not confirmed by the radiograms. Cholecystography revealed a poorly filled bladder, but of clear outline, the emptying being delayed to six hours in spite of a Boyden meal.

Operation was performed under spinal anæsthesia. The gall-bladder was found to be enlarged and tense, and could not be emptied even by pressure. The wall was thin and showed no signs of any inflammation. Adhesions between the neck of the bladder and the hepatoduodenal ligament caused a kink in the extremely long cystic duct. The aspirated bile showed the typical dark green colour characteristic of stasis. I made a wide anastomosis between the neck of the bladder and the common duct.

The effect of the operation was remarkable. The symptoms vanished almost immediately, and the patient became astonishingly hungry within a few days after the operation—a surprising contrast to the constant lack of appetite before the operation. The further recovery of the patient was very rapid, and she was able to eat any kind of food. Increase of weight was 15 lb. within a short time. During the rest of the period of observation she never had any complaints.

Encouraged by this result, I have performed this operation not only in simple cases of stasis of bile in the gall-bladder but also in cases where stones were found in a still functioning bladder, with the purpose of preserving the function of the organ.

TECHNIQUE

The operation is much easier than might be expected.* It is essential that the field of operation should be well exposed, and for this purpose my costal incision and the use of a self-retaining retractor have proved helpful. If we decide to preserve the gall-bladder, it is punctured, its liquid contents are removed by aspiration, and it is washed out with saline with a double-way syringe. The fundus of the gall-bladder is opened by a small incision and the mucosa examined. It is not sufficient to examine the emptied bladder for stones by external palpation;

* Wolf (*Zbl. Chir.* 1914) performed an anastomosis between the gall-bladder and the lower stump of the common duct in a case where the latter had been ligatured and cut when operating. There were no technical difficulties, and the result was satisfactory.

DR. FAIRBROTHER AND OTHERS: *Continued from previous page*

We are indebted to Messrs. Hoffmann-La Roche for kindly supplying the liquoid used in this investigation.

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one should always examine the inside by introducing the finger into the opening and carefully palpate especially the opening of the cystic duct. The hepatoduodenal ligament is incised over the common duct. It is not essential for the common duct to be very wide for performing the anastomosis. I have often operated successfully on a relatively narrow duct. After the anterior wall of the common duct is laid bare and the small blood-vessels are ligatured, the common duct is opened by an incision 1–1½ in. long. Calculi found are removed, and we should make sure that the papilla is free. The bladder is opened in the most suitable place corresponding to the incision in the interior wall of the common duct. Two catgut sutures fix the end of both incisions and bring together the walls of the common duct and the bladder. While the assistant stretches the two holding sutures, the posterior part of the anastomosis can be done very easily. A small drain, with one or two side holes at the end, is then introduced into the fundus through the opening of the bladder and the anastomosis into the common duct down to the papilla (fig. 1). The calibre of the drain must be chosen according to the width of the common duct, so that there may be free space between the drain and the wall of the common duct. Over this drain the suture of the anterior walls is then easily performed, the suture line being protected by sewing the hepatoduodenal ligament around the anastomosis. I have performed the anastomosis several times without this internal drain, but a safety drain not too far from the anastomosis has always been left to allow drainage in case of leakage of bile. The hole in the fundus of the bladder is either totally closed or tightly sutured round the rubber tube.

RESULTS

In some cases we observed leakage of bile for a few days, without any effect on the result of the operation and on the recovery of the patient. At first I performed operations only in cases where stasis of the bladder was the outstanding pathological finding. The success in these cases encouraged me to extend the indication to include cases with gall-stones, in an attempt to preserve the still functioning gall-bladder.

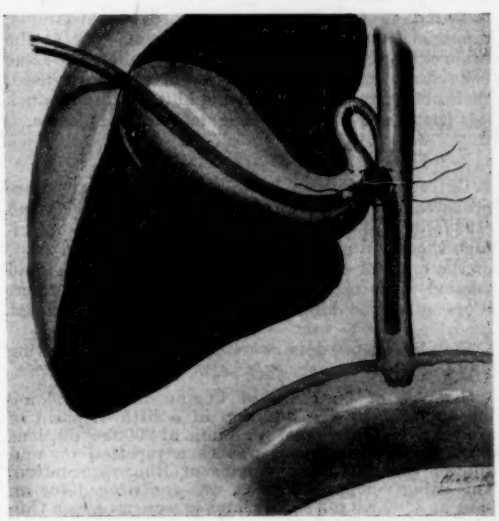

FIG. 1—Cholecystocholedochostomy for biliary stasis.

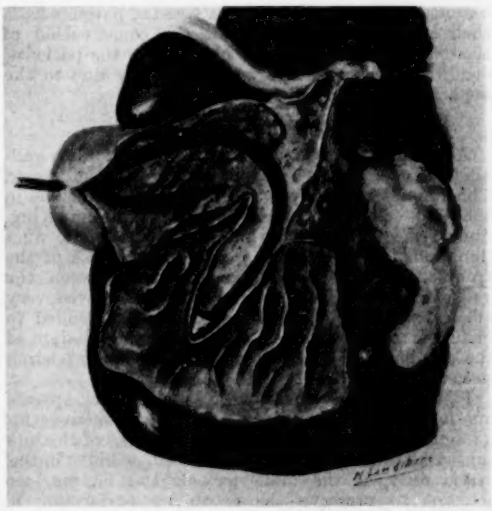

FIG. 2—Cholecystocholedochostomy with stone in common duct. Patient died of pneumonia 8 days after operation. Post-mortem specimen.

I have thus operated on 32 cases, with one death (from pneumonia) a week after the operation. This case was complicated by impacted stones in the ampulla of Vater, and the idea was to use the ether method (Pribram 1939) for dissolving the stones later. The post-mortèm showed the anastomosis well healed, with the rubber tube and the stone over the papilla (fig. 2).

The first operation having been performed only six years ago, as already mentioned, the period of observation has been too short to allow a definite conclusion on permanent results. We therefore can only report our observations in the postoperative course and the follow-up of the patients for a few years.

One of the immediate results is that the patient develops an appetite in the very first days after operation, and that this sometimes increases to the point of a pronounced feeling of hunger. This is known not to take place after cholecystectomy, even when the patient has made the best recovery. Food tolerance after cholecystectomy is often diminished for weeks, and the rule that a strict diet should be observed is well founded. I have often noticed that patients after cholecystectomy complained that all food had the same taste, and that the capacity of discerning the taste of different foods became less pronounced. After cholecystocholedochostomy, on the other hand, the patient not only shows an extraordinary appetite on the third or fourth day after the operation but also tolerates food much better than could be expected from his condition before the operation. A great many patients could tolerate fatty food without difficulty after the operation.

A question which we have yet to discuss is whether the anastomosis remains open. It could obviously be feared that the new opening would shrink or disappear. I had to perform a second operation on two patients for continuance or recurrence of symptoms. In both cases the anastomosis was found to be open wide enough to admit the little finger. The bladder contained fresh brownish bile. There were no signs of stasis or new formation of stones. Cholecystectomy was performed in these two cases, but even the

removal of the bladder did not free the patients from their complaints, proving that the conservation of the bladder could not be blamed for the patients' condition. The trouble was apparently due to the hepatitis found in both cases.

SUMMARY

All attempts to preserve a still functioning gall-bladder are justified in operations of that organ. This applies especially to cases where stasis of bile in the bladder and difficulties in the normal emptying, due to mechanical abnormalities in the cystic duct (long and tortuous duct), are the main cause of the trouble. In these cases anastomosis between the gall-bladder and the common duct has proved very efficient. The indication has also been extended to include cases with stones, to preserve the function of the gall-bladder, and to avoid further stasis leading to new formation of stones.

I think it an advance to individualise when operating for gall-bladder disease. (1) When there is no inflammation of the gall-bladder and stasis of the bile caused by mechanical conditions, such as kinks in the cystic duct, is the main pathological finding, an attempt to preserve the organ by performing a cholecystocholedochostomy is justified and has proved very satisfactory. (2) In badly inflamed cases, especially empyema of the gall-bladder, phlegmonous inflammation of the walls, abscesses of the liver bed, and in cases of a shrunken gall-bladder, perforation and so on, the electrosurgical operation (Pribram 1928–29) has proved the most successful procedure, giving far better results than a classical cholecystectomy. So in cases of urgent surgery it has entirely replaced cholecystostomy, which I have not performed since 1926.

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BRITISH INSTITUTE OF PHILOSOPHY.—The fifth address of the special series of public addresses on the deeper causes of the war and the issues involved will be given by Sir Richard Livingstone, D.Litt., in the Assembly Hall of the Royal Empire Society, Craven Street, W.C.2, at 2 P.M., on Thursday, Jan. 18. He will speak on the crisis of civilisation. Further addresses will be given by Sir William Beveridge, Sir Richard Gregory and Prof. Ernest Barker.

OBSERVATIONS ON THE COAGULATION OF BLOOD PLASMA IN HÆMOPHILIA

BY HENRIK DAM AND HELGE VENNDT

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IN our investigations on the clotting power of human and mammalian blood (Dam and Glavind 1938a, b, and c) we used a method of determination in which blood plasma containing a certain quantity of heparin was tested against various concentrations of an extract of human brain.

In this method 0·03 mg. of the standard heparin of Jorpes (1939) is added to 4 c.cm. of blood, and the concentration (K) of the brain extract which coagulates the plasma in 3 min. under fixed conditions is determined. If the corresponding concentration of the brain extract which coagulates normal plasma with the same concentration of heparin in 3 min. is K_n, the equation $R = \frac{K}{K_n}$ gives the measure of the abnormality of the coagulation, and the equation $\frac{1}{R} = \frac{K_n}{K}$ gives the clotting power. Plasma with normal clotting power has an R value equal to 1, with slight variations on each side.

When a plasma with reduced prothrombin content, such as plasma from patients with obstructive jaundice, is tested in this way, the coagulation power $\left(\frac{1}{R}\right)$ will depend on and be approximately proportional to the prothrombin content.

In plasma from hæmophiliacs the clotting power $\left(\frac{1}{R}\right)$ is normal (approximately 1); but, when certain variations of the technique are introduced, the ability of hæmophilic plasma to react with tissue extract is reduced. Thus, when a coagulation-time longer than 3 min. (corresponding to lower concentrations of the tissue extract) is used for the determination of K and K_n, the clotting power $\left(\frac{1}{R}\right)$ of hæmophilic plasma is found to be abnormally low. Tissue extracts, prepared from other organs in the same way as the brain extract, and platelet suspensions show the same behaviour: as soon as low concentrations are used, their ability to coagulate hæmophilic plasma is much less than their ability to coagulate normal plasma.

EXPERIMENTS

Extracts of human brain and other organs were prepared and stored as described by Dam and Glavind (1938a, b, and c). It was found advisable to centrifuge the brain extract, when diluted to 10 per cent. of the original concentration, and to use the liquid portion for preparing the lower concentrations. (Concentrations higher than 10 per cent. were not used.)

Platelet suspensions were made in the following way:—

Samples of 50 c.cm. of human blood rendered incoagulable by the addition of a little heparin of Jorpes were centrifuged for 5 min. at 2000 revolutions a minute. The plasma was then pipetted off and diluted with the same volume of Ringer's solution. This Ringer-heparin plasma was centrifuged for an hour at 3500 r.p.m. The platelets were seen as a thin white layer on the bottom and the lower side-walls of the tube. The supernatant fluid was pipetted off and

discarded. The platelets were washed twice with 50 c.cm. of Ringer's solution, being centrifuged, after each washing, for half an hour at 3500 r.p.m. Finally the platelets were washed out of the centrifuge tube with 1 c.cm. of Ringer's solution into a small mortar, loosened with a glass rod, and squeezed with a pestle till the suspension was uniform and milky.

The patients used in the experiments were three brothers with severe hæmophilia. The cases were examined and diagnosed in the University Clinic in Copenhagen by Prof. Eggert Möller.

An experiment with extract of human brain gave the results shown in table I.

Several other experiments with human brain extracts have given corresponding results.

The results of experiments with extract of human lung and with extract of rabbit lung are shown in tables II and III.

TABLE I—EXTRACT OF HUMAN BRAIN

Blood plasma	Concentration of human brain extract (per cent.)	Clotting-time (minutes)	Blood plasma	Concentration of human brain extract (per cent.)	Clotting-time (minutes)
Hæmophilic	10	1	Normal	10	1
	5	1½		5	1½
	2·5	2½		2·5	2½
	1	7		1	4½
	0·5	More than 35		0·5	9½
	0·25	„ 35		0·25	15½
	0·1	„ 35		0·1	18

Experiments were also made with normal and hæmophilic human platelets to determine their influence on the clotting-time of normal and of hæmophilic heparinised plasma. The results are given in table IV.

DISCUSSION

The experiments show that, if decreasing concentrations of brain extract are tested against hæmophilic plasma, the smaller concentrations cause a sudden increase in coagulation-time. For normal plasma this is not the case or not so pronounced, and the spontaneous coagulation of normal plasma comes into play at these low concentrations. Similar experiments with tissue extracts from other organs show the same difference between hæmophilic plasma and normal plasma.

TABLE II—EXTRACTS OF HUMAN LUNG

Blood plasma	Concentration of human lung extract (per cent.)	Clotting-time (minutes)	Blood plasma	Concentration of human lung extract (per cent.)	Clotting-time (minutes)
Hæmophilic	20	1½	Normal	20	1½
	4	5½		4	3½
	1	10		1	5½

The platelet suspensions had a much smaller power of coagulating than had the organ extracts, because the suspensions were prepared from a smaller amount of cell substance. The quantity of platelet suspension was not sufficient to make determinations with a long series of concentrations, but the results clearly show the difference in clotting power against normal and hæmophilic plasma. In the case of the platelets, even concentrations which coagulate normal plasma in 2 min. require much longer time to coagulate hæmophilic plasma. No difference could be found between suspensions of platelets from normal and hæmophilic blood.

TABLE III—EXTRACT OF RABBIT LUNG

Blood plasma	Concentration of rabbit lung extract (per cent.)	Clotting-time (minutes)	Blood plasma	Concentration of rabbit lung extract (per cent.)	Clotting-time (minutes)
Hæmophilic	1	1½	Normal	1	1
	0·5	1½		0·5	1½
	0·25	2½		0·25	2½
	0·1	7		0·1	3½
	0·05	More than 40		0·05	5½
				0·025	10½

We are aware that the mechanism of coagulation may be somewhat more complicated in plasma containing heparin than in plasma without heparin, but it is scarcely possible to carry out the experiments with normal plasma without the presence of heparin or some other anticoagulant. Our conclusion, however, is that the only detectable abnormality of hæmophilic plasma is its reduced ability to coagulate on the addition of small quantities of tissue extract.

Small amounts of tissue extract cannot exert their coagulative action in hæmophilic plasma so easily as in normal plasma. This is also supposed to be the cause of the difference in the tendency to spontaneous clotting. The cause may be either that a small quantity of tissue extract is "neutralised" by the hæmophilic plasma, or that an accelerator is lacking. If the latter is the case, the action of the accelerator is only necessary for the small amounts of tissue extract. If the hæmophilic plasma neutralises small amounts of tissue extract, the neutralisation cannot be due to the heparin, for the phenomenon is observed in heparinised plasma.

TABLE IV—SUSPENSIONS OF HUMAN PLATELETS

Platelets	Expt.	Clotting-time in minutes of heparinised plasma: Normal	Clotting-time in minutes of heparinised plasma: Hæmophilic	Platelets	Expt.	Clotting-time in minutes of heparinised plasma: Normal	Clotting-time in minutes of heparinised plasma: Hæmophilic
Normal	1	2	23	Hæmophilic	1	2½	More than 20
	2	3½	26		2	9½	More than 25
	3	3½	More than 45				
	4	3½	„ 45				
	5	4½	„ 45				

The amount of tissue extract used in our usual determination of the R-value is no doubt much higher than the amount liberated during bleeding from wounds. With such unphysiologically high concentrations of tissue extract the difference between hæmophilic and normal plasma does not come into play, and the same is the case when Quick's (1937) method is used, in which a great excess of tissue extract is added.

Further conclusions as to the cause of the abnormal coagulation-time in hæmophilia cannot be drawn from

the present experiments. Bendien and van Creveld (1935), Patek and Taylor (1936), and other workers have investigated this subject. They used the spontaneous coagulation (after addition of calcium chloride to oxalated plasma) as a criterion of the difference between hæmophilic and normal plasma.

They conclude that in hæmophilic plasma a coagulating accelerating factor connected with the globulins is lacking, and they discard the theory of a difference in the efficiency of the platelets as the cause. Until the present experiments were made, we had difficulty in reconciling the work of these observers with the results obtained by our method and by Quick's method, but in the light of our new experiments this difficulty has been eliminated. Our observations do not, however, give any evidence of the existence of the supposed accelerator.

SUMMARY

The abnormal coagulation of hæmophilic plasma can be defined as due to a reduced ability of the plasma to coagulate in the presence of small quantities of tissue extract, such as are usually liberated from mechanically damaged cells, whereas there is no difference between hæmophilic and normal plasma in respect of the clotting power in the presence of large quantities of tissue extract.

When platelet suspensions are used instead of tissue extract, the difference in coagulation power between normal and hæmophilia plasma is even more pronounced.

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ENTERIC INTUSSUSCEPTION TREATED BY RESECTION

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Intussusception arising in and limited to the small intestine, known as the "enteric" variety, presents several interesting points of contrast with the more familiar ileocæcal and ileocolic types. In a detailed survey of 400 cases of intussusception treated at the London Hospital Perrin and Lindsay (1921) summarised the principal features of the 27 cases of enteric intussusception included in this series. No better impression of the clinical course of the condition could be conveyed than by reference to the main points which their inquiry brought out. The relative frequency of the enteric variety is sufficiently indicated by the occurrence of only 27 cases among the 400 consecutive intussusceptions of all types.

ÆTIOLOGY

As compared with the typical ileocolic and ileocæcal intussusceptions of infants, the enteric variety shows a distinctly greater proportion of cases associated with some definite anatomical source of origin. Among Perrin and Lindsay's 27 cases 6 could be attributed to such causes: 2 had a congenital constriction of the bowel, 2 tuberculous ulceration of the small intestine, 1 a polypus, and 1 a myomatous tumour. The occurrence of intussusception in the presence of a Meckel's diverticulum is also well known. According to Harkins (1933) 2·5 per cent. of the recorded cases of intussusception were thus caused. There remains, however, a substantial majority of enteric intussusceptions (21 out of 27 in the above-mentioned series) where no gross anatomical cause exists. Mooro (1924) published 1 such case which occurred in an adult Mohammedan while fasting, together with 1 case of ileocolic intussusception which happened under the same conditions. These 2 cases were probably exceptional. Perrin and Lindsay suppose that the origin of most enteric intussusceptions is to be sought in the swelling of a Peyer's patch, which initiates the abnormal peristaltic contractions. In the case here reported there was no tumour or recognisable anatomical defect, and the gangrenous condition of the affected bowel prevented any opinion from being formed as to the condition of the Peyer's patches.

AGE-INCIDENCE

In contrast with ileocæcal and ileocolic intussusceptions, the vast majority of which are seen in infants, the enteric variety shows no marked concentration in any age-period. Of the 27 cases from the London Hospital 15 patients were in the first decade and 6 in the second, and the oldest was 58.

SYMPTOMS

Just as in ileocæcal and ileocolic intussusceptions, the symptoms of the enteric variety are those of intestinal obstruction with strangulation. The enteric cases, however, are notable for the much slower rate at which this clinical picture develops and for the comparatively healthy condition of the patients in the earlier stages of their illness. As a consequence, the average duration of symptoms before operation is much longer, and the likelihood of irreducibility or of gangrene having supervened is correspondingly greater. This is well illustrated in a woman, aged 20, described by Halloran (1939):—

> "The interesting feature of this case is the fact that the symptoms were not at all alarming. After the first attack of acute pain, the patient had little or no pain and the pulse and temperature were normal, while the bowel at the time of operation had already undergone irreparable damage."

A man, aged 50, reported by Paul (1939), had had colicky pain for two days before admission to hospital and was kept under observation for nearly two more days before operation revealed an enteric intussusception. In this instance reduction was easily accomplished, and the gut was viable.

Fraser (1939) described an interesting case of four successive intussusceptions in a young child; on the third occasion the intussusception was enteric. Fraser observes: "It is possible that this would have been overlooked had it not been for the mother's now expert knowledge of this trouble, for the enteric variety causes delayed obstruction."

An additional difficulty in diagnosis is created by the fact that a palpable tumour is much less common in enteric intussusception than in the ileocæcal and ileocolic varieties. This sign was present in only 8 of Perrin and Lindsay's 27 cases. Its absence is noted in the description of Paul's case. In the case reported below the patient had had abdominal pain for four days before his admission to hospital, when his general condition still appeared healthy. No intra-abdominal tumour was felt. At operation the bowel was gangrenous.

CASE-MORTALITY

Enteric intussusception is more fatal than any other variety; 15 of Perrin and Lindsay's 27 patients died.

In every fatal case a resection had had to be performed, and of the 16 patients who had had a resection in this series only 1 recovered.

CASE-RECORD

A boy, aged 14, was admitted to Redhill County Hospital on Feb. 27, 1939. Four days previously he had been taken ill with abdominal pain, which was described as aching and constant. He had vomited several times. His bowels, which had not acted since the beginning of the attack, had responded to an enema on the day of admission. He was said to have passed some blood per rectum. He had had occasional attacks of similar pain since the age of 6, especially after gobbling his food. They had never been sufficiently severe to keep him in bed. Otherwise he had always been healthy and athletic.

On admission his temperature was 98·2° F., pulse-rate 112, and respiration-rate 24. The boy was of robust build and did not appear to be distressed or in

Resected small intestine, containing an enteric intussusception

any great pain. His abdomen was slightly distended and doughy. It was hyper-resonant to percussion. There was no special tenderness and no muscular resistance. No abnormality was found on rectal examination.

On the 28th the condition was very little changed. He had not vomited since admission. The pulse-rate had fallen to 96. An enema produced a little bright blood, not admixed with the fæces. On March 1 he was obviously ill, and he vomited. His abdomen was more distended. Coils of intestine were visible, forming a "ladder" pattern. On rectal examination there was some dark blood left on the finger. The pulse-rate rose from 92 to 124.

Operation.—March 1: General anæsthetic. I opened the abdomen by a right subumbilical paramedian incision. There was bloodstained free fluid in the peritoneal cavity. The small intestine was much distended, and a deeply congested loop presented itself. This was found to be an enteric intussusception. There were multiple patches of gangrene on the sheath. There was no hope of saving the affected bowel. Resection was therefore carried out, and an end-to-end anastomosis was performed. An enterostomy was made just above the anastomosis, and a No. 12 rubber catheter was stitched in. The operation was difficult, owing to the great distension of the intestine and to the poor condition of the patient under the anæsthetic.

Subsequent progress.—On the 1st day the condition was fair. There was some vomiting, which ceased after a Ryle's tube was passed. On the 2nd there was general improvement and no further vomiting. Enterostomy drained 70 oz. On the 4th bowels opened per rectum, a formed stool being passed. On the 6th there was some fæcal discharge round the enterostomy tube, and the patient complained of pain in the right side of the chest. The enterostomy tube was removed on the 7th, and next day the patient had several rigors.

On the 15th a large necrotic abscess had developed in the left buttock. This was interpreted as a metastatic infection related to the rigors on the 8th. On the 24th there were signs of empyema on the right side of the chest. Radiography showed fluid at the right base, partly interlobar. The chest was aspirated, but no pus was found. The empyema subsequently cleared up spontaneously.

On the forty-fifth day after operation the patient, now very fit, was allowed up. The abdominal incision was soundly healed. The enterostomy was dry. The abscess cavity in the left buttock was nearly filled by healthy granulation tissue. The bowels were acting normally. The boy complained of no symptoms, had a healthy appetite, and was rapidly putting on weight. He was discharged at the end of the ninth week of his convalescence.

Pathology.—The specimen removed at the operation consists of 12 in. of the ileum containing an enteric intussusception (see figure). The intussuscipiens shows multiple patches of gangrene involving the whole thickness of the bowel but not perforated. The intussusceptum is deeply congested, and there is much effused blood in the intestinal lumen. There is no gross abnormality of the bowel to which the intussusception is attributable.

SUMMARY

A case of enteric intussusception is reported with the following features: (1) The symptoms developed slowly over a period of six days. (2) The intussusception was irreducible and gangrenous at the time of the operation. (3) The patient made a complete recovery after resection and end-to-end anastomosis. (4) There was no gross anatomical cause for the intussusception.

I am indebted to Dr. J. N. Deacon, medical superintendent of Redhill County Hospital, for permission to publish this case.

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URINARY EXCRETION OF PORPHYRINS IN CHEMICAL WORKERS

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AND

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Aromatic nitro- and amino-bodies and many of their derivatives are well-known causes of cyanosis among factory workers, and methæmoglobinæmia also follows their administration to animals. Under modern conditions, with good ventilation, enclosed plant, and medical supervision of the workers, severe industrial cyanosis is rare. Mild cases, however, do occur and on detection readily recover on removal from the contaminated atmosphere to fresh air; an hour or two usually suffices to bring such a case back to normality, so far as manifest symptoms are concerned. In the rare case of severe cyanosis it may be necessary to administer oxygen and cardiac stimulants, and sometimes venesection may be advisable. Recovery is the rule, and fatalities are very rare. Nevertheless, there remains the problem of the effects produced by long-continued absorption of small amounts of aromatic nitro- and amino-bodies, insufficient to produce overt symptoms. It is difficult to demonstrate a correlation between such absorption and the

state of health of the worker. Indeed, men continue to work for many years in more or less unsatisfactory conditions without serious complaint. It is clear that very efficient mechanisms are available in the organism for the rapid and effective detoxication of these substances.

During a recent study of the action of sulphonamide on the hæmopoietic system in normal rats Rimington and Hemmings (1939) found an increase in the urinary excretion of porphyrins. Comparison with the effects of simpler related compounds led to the generalisation that all those substances that increased the excretion of porphyrins could also produce methæmoglobin in vivo. Aniline, for example, was shown to be a very effective porphyrinuric agent, and the comment was made that increased urinary excretion of porphyrins might be of value in the early diagnosis of intoxication with aniline (or a related body) in factory workers. The diagnosis of acute cyanosis in a worker is, however, a matter of little difficulty, and the observant chemist, plant superintendent or foreman soon becomes expert in it; but it is in connexion with the more obscure effects of long-continued exposure to aromatic nitro- and amino-bodies that the excretion of porphyrins may have significance.

RESULTS

The results are shown in the accompanying table.

URINARY EXCRETION OF PORPHYRIN IN FACTORY WORKERS

Excretion of porphyrins	Case	Porphyrins (μg. per 1500)	Nature of contacts
Normal	1	44·2	No contacts — engineering stores
	2	39·0	α-naphthylamine manufacture
	3	53·9	Process, *p*-toluidine
	4	9·9	No contacts—ambulance-room attendant
	5	36·8	
	6	49·4	No contacts—fireman
	7	19·6	Aniline-salts plant
	8	52·3	α-naphthylamine manufacture
		Average 38·1	
Proportion of cases in contact with cyanosis-producing agents 1 : 8 (aniline salts not likely to produce cyanosis in conditions obtaining).			
Slightly increased	9	68·3	α-naphthylamine manufacture
	10	67·2	Process, acids
	11	62·8	Nitrobenzene, nitrotoluene
	12	75·0	Process, phthalic anhydride
	13	78·1	Nitrobenzene
		Average 70·3	
Proportion of cases in contact with cyanosis-producing agents 2 : 5.			
Much increased	14	90·0	No contacts — engineering stores *
	15	102·7	No contacts — engineering stores
	16	107·6	Nitrobenzene
	17	88·1	Standardising processes
	18	128·0	Risk from adjacent nitrobenzene
	19	101·3	Nitrobenzene
	20	199·5	Aniline, nitrobenzene
		Average 116·9†	

* Query as to reliability of figure due to presence of brown pigments.

† Eliminating doubtful analysis in Case 14.

Proportion of cases in contact with cyanosis-producing agents 4 : 6.

Substances causing methæmoglobinæmia in man and animals: aniline, nitrobenzene, nitrotoluene, *p*-toluidine. α-naphthylamine does *not* give rise to cyanosis.

METHOD OF INVESTIGATION

The present investigation was undertaken to determine whether workers exposed to a risk of cyanosis excreted porphyrins in abnormal quantities. Specimens of urine were obtained from workers, some of whom were engaged on processes involving the manufacture or use of aromatic nitro- and amino-bodies, whereas the remainder had little or no contact with such materials and served, therefore, as controls. For determinations of porphyrins in urine a method was used not essentially different from that described by Rimington and Hemmings (1939) for rats' urine. In investigations of this kind in factories it is not usually possible, in this country, to obtain complete 24-hour collections of urine; so all results were calculated on the assumption of a daily excretion of 1500 c.cm., the upper limit of normal urinary excretion of porphyrins in man being taken as 60 μg. daily. A closer estimate of the daily urinary volume might be obtained from the creatinine content of a random specimen, but in this case dietary sufficiency would have to be assumed; we have preferred to present our findings on the 1500 c.cm. basis.

DISCUSSION

None of these workers was cyanosed at the time of collection of the specimens of urine, nor were they in any way clinically abnormal. A much-raised excretion of porphyrins in 6 out of 7 men engaged on work involving a risk of cyanosis points strongly to the conclusion that absorption was taking place. The absence of symptoms is to be considered as due to a sufficiently rapid and efficient disposal of the absorbed substances to prevent the accumulation of toxic concentrations in the blood. The effect of a maintained increase of excretion of porphyrins of the order recorded on the ultimate health of the worker is not yet clear and requires further study.

No significant increase was found in the workers dealing with α-naphthylamine. This is in agreement with the view, already referred to, that substances increasing the excretion of porphyrins also lead to methæmoglobinuria, for α-naphthylamine workers, in our experience, never suffer from clinical cyanosis, nor does this amine produce methæmoglobinæmia in mice, rabbits, or cats (anæsthetised). By diazotisation of the urine (collected with suitable precautions to prevent contamination) from the α-naphthylamine workers and coupling in alkaline solution with a suitable coupling component, it could readily be shown that amine was present in considerable concentration, thus leaving no doubt as to the absorption (probably by the respiratory tract). We impress the failure to find increased porphyrinuria in α-naphthylamine workers because of the well-known relation between naphthylamines and vesical neoplasm (for review of this problem see Hueper 1938). Whatever the ultimate significance of increased porphyrinuria may prove to be, in such cases as we have reported on, it seems unlikely that any correlation with carcinogenesis is involved. Nevertheless, investigation of a more extensive series is desirable, particularly where conditions are such that absorption of the amines is considerable.

Benzidine readily leads to the formation of methæmoglobin in the organism and on statistical grounds is regarded as a carcinogenic agent (bladder), but we have not included workers manufacturing benzidine, because this process involves the use of nitrobenzene, whose odour is always manifest in greater or lesser degree in a benzidine plant, although the modern process of electrolytic reduction is carried

out in such conditions that even mild cyanosis is rare.

In Hueper's (1938) experiments, in which tumours were produced in dogs' bladders by the long-continued administration of large doses of β-naphthylamine, no mention is made of urinary changes suggesting that an increased amount of porphyrins was being excreted. If this conclusion is justifiable, the question of porphyrinuria appears to become remote, so far as the problem of so-called "aniline cancer" is concerned. We have not seen clinical cyanosis in workers exposed to the dust of β-naphthylamine, nor the formation of methæmoglobin in animals suitably injected with this amine. Baader (1931), in his description of the chronic toxic action of cyanosis-producing agents, refers briefly to the increasing anæmia, hæmolytic jaundice, albuminuria, and hæmatoporphyrinuria (?) and evidently regards the effects as being mainly on the liver. Injury of the liver resulting from exposure to aromatic nitro-bodies is well known, and many serious cases occurred during the war in the manufacture of nitrotoluene. This seems to be the most probable explanation of the increased excretion of porphyrins, the degradation of hæmoglobin in the liver being to a greater or lesser extent deflected from its normal course either by a functional disturbance of the liver or by an increased blood destruction. The extreme sensitivity of some people to aromatic nitro- and amino-bodies may possibly be related to the ease with which their hepatic mechanisms are disturbed, and such people may, before contact with these bodies, excrete an abnormally high amount of porphyrins. This remains to be seen. Should this suggestion be confirmed, the determination of the amount of porphyrins excreted in the urine may become a valuable means of deciding on the suitability of an applicant for this kind of work and on the proper time to permit a worker to return to such work after an attack of cyanosis. Schäfer (1938) suggested the determination of the amount of porphyrins excreted in the urine as an index of the degree of intoxication with lead, and he asserted that it was a better index than punctate basophilia. If this claim is confirmed, we consider that its value will lie in the detection of hypersensitives rather than in the routine examination of workers exposed to a lead hazard, for which, in most lead trades, the determination of hæmoglobin and punctate basophilia has the advantage of ease and rapidity, whereas for some the unequivocal test of the total amount of lead excreted is essential.

SUMMARY

A considerable increase in urinary porphyrins can be demonstrated in workers engaged in the manufacture or use of aromatic nitro- and amino-bodies who do not show any overt signs of toxicity. It is suggested that determinations of the amount of porphyrins so excreted may prove of value in detecting hypersensitives to aromatic nitro- and amino-bodies and in deciding when an affected worker may safely return to work.

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CLINICAL NOTES

BILATERAL PLEURAL EFFUSION

FOLLOWED BY MILIARY TUBERCULOSIS OF LUNGS AND TUBERCULOUS MENINGITIS

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A CASE of bilateral pleural effusion in miliary tuberculosis of the lungs was described by Dr. George Hurrell and Dr. E. F. Dawson-Walker in THE LANCET, Aug. 5, 1939, p. 313, and the whole subject of bilateral pleural effusion was considered in an annotation in the same issue. The following case is therefore of interest.

A soldier, aged 18, was admitted to the Royal Naval Hospital, Plymouth, on Feb. 3, 1939, with a history of cough and pain in the right side since Dec. 12, 1938; but he had reported sick only fourteen days before admission. He was pale, looked anæmic, and had dyspnœa, cough, and sputum. His evening temperature was 100° F. and pulse-rate 96. Respiration-rate 20–24 during the ensuing week. Clinically and radiologically there was a small right pleural effusion but no evidence of tuberculous infiltration of the lungs. The next day 20 c.cm. of pale straw-coloured fluid was removed from the right side of the chest. The cells in the fluid were lymphocytes 90 per cent. and polymorphs 4 per cent. There were no tubercle bacilli or other organisms in a direct smear. A guineapig inoculated with 10 c.cm. showed no sign of tuberculosis when killed on March 22.

The patient progressed satisfactorily, the temperature becoming practically normal on the 20th and continuing so until March 16, when it began to rise again; on the evening of the 24th it was 101° F., the pulse-rate being 124 and the respiration-rate 28. About this time friction was heard on the left side, and radiography showed a dense shadow in the left lower zone, the shadow on the right side having considerably cleared. Straw-coloured fluid (4 pints) aspirated from the left side of the chest on April 1, and 250 c.cm. on the 6th contained lymphocytes 90 per cent., polymorphs 4 per cent., and monocytes 2 per cent. No tubercle bacilli were found on a direct smear. A guineapig inoculated with this fluid showed no tubercle bacilli when killed on May 12.

The patient's temperature kept up to 102° F. from March 24 to March 31, then dropped to 100° until April 10, and gradually declined till it reached normal on the 16th. The pulse-rate was 100–130, and the respiration-rate 30–32 during the febrile period. By April 16 the pulse-rate had fallen to 80–90, but the respiration-rate was 24–28. Radiography on April 29 showed that the shadow on the left side had largely cleared up, being now confined to the costo-phrenic sulcus and two finger-breadths immediately above. On the right side there was still shading below the fourth rib. It was thought that by this time the shading on both sides was mainly due to thickened pleura.

From April 16 the patient went on improving, but on May 18 there was a rise in temperature, associated with urinary infection due to coliform organisms; this cleared up within two weeks. The patient was discharged from hospital on June 14, the temperature having been normal for three weeks, though the pulse-rate was 80–100. His weight, which on admission was 137 lb., was now 147¼ lb. The last radiogram taken in the naval hospital on May 25 was very similar to that taken on April 24; there was no infiltration of the lungs. The blood sedimentation-

rate on discharge was 26·7 average per hour (Katz). The patient was declared unfit for further military service.

He was admitted to the Holywood Hall Sanatorium, Wolsingham, co. Durham, on Aug. 21. His weight was now 139 lb., blood sedimentation-rate 17 mm. per hour, average for two hours (Westergreen's), pulse-rate 70–80, and temperature normal during the first three weeks. There was no dyspnœa. He looked pale and anæmic, but otherwise apparently normal. Radiography, however, on the 21st showed that, although the pleural shadows had almost entirely cleared, the lungs were studded all over with fine miliary tubercles. The only physical signs elicited were slight impairment and diminished breath sounds at the right base.

There was no change in his condition until Sept. 6, when he complained of headache and vomited once. There was no abdominal pain or discomfort. On the 8th frontal headache was still present, the vomiting continued, and there was some pain over the cervical spine on acute flexion of the neck. On the 9th 3 c.cm. of clear fluid, not under pressure, was withdrawn by lumbar puncture. On the 10th he felt better, though headache was still present and appetite poor. Headache and vomiting persisted to the 15th, when there was stiffness of the neck and the pulse-rate was 50–60, though the temperature registered only a few points above normal. On the 17th the stiffness was greater and Kernig's sign positive. On the 18th and 20th 2 oz. of clear fluid was withdrawn, under extreme pressure, by lumbar puncture. From this time onwards the general condition was much worse, with drowsiness proceeding to stupor, restlessness, involuntary movement of the arms, incontinence of urine, strabismus, and extreme rigidity of the neck. The pupils were dilated but equal. In the last few days the pulse was weak and the pulse-rate 100–110. He died on the 24th. No necropsy was performed.

Laboratory reports on cerebrospinal fluid.—Sept. 9: 3 c.cm. of colourless watery fluid. No sugar, no excess of protein. Cell count 56 per c.mm., mostly lymphocytes. No tubercle bacilli discovered by the Ziehl Neelsen method. Sept. 18: 4 c.cm. of clear watery fluid. No sugar, slight excess of protein. Cell count 154 per c.mm. No tubercle bacilli seen. Culture medium (Lowenstein-Jenson) inoculated. Sept. 20: 250 c.cm. of clear watery fluid. No sugar. slight excess of protein. Cell count 266 per c.mm. Tubercle bacilli present. Oct. 26: culture medium showed three large light-buff colonies of acid-fast bacilli.

I thank the principal medical officer of the Plymouth Naval Hospital for the clinical and laboratory notes and radiograms of the patient when under his care, and Dr. T. J. Coffey, my assistant, for the clinical and laboratory notes of the case when the patient was in this institution.

TREATMENT OF ACRODYNIA WITH VITAMIN B_1 GIVEN PARENTERALLY

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THE following case of acrodynia (pink disease) is reported because of the immediate response to treatment with synthetic vitamin B_1 given by injection.

A male child, aged nine months, was admitted to the Willesden General Hospital on March 16, 1939. There had been a gradual failure of health since the beginning of January, with much loss of weight: weight at birth, 6 lb. 6 oz.; Jan. 27, 17 lb. 3 oz.; March 16, 14 lb. 10 oz. On admission all the features of acrodynia were present: the red and puffy hands and feet, a papular rash, irritability, anorexia, photophobia, and catarrh. He spent most of the day crouching on his belly, with his face buried in the pillow, and when roused would scream and bang his head violently against the sides of the cot. It was with the utmost difficulty that he was persuaded to take his feeds. The birth had been normal and at full term, and breast-feeding had been maintained until admission, although he had had some supplements in the previous few weeks. The mother's diet in pregnancy had consisted largely of milk, white bread, butter, and fruit, although she said that her diet had been increased and been more varied during lactation. Some bronchitis and a nasal discharge were present on admission. A radiogram of the chest showed no abnormality. The Mantoux test was 1 in 1000 negative, the urine was normal, and a fractional test-meal showed a normal range of acidity.

A mixed diet was given of milk, Farex, egg, potato, mince, cereals, and fruit-juice, because he had not previously had any orange-juice. He was also given Radiostoleum 20 drops a day, ascorbic acid 100 mg. a day, Bemax, and liver extract. Later, May 9, the vitamin B was given in tablet form, a Roche preparation being used instead of the bemax. Very little improvement was noted, and after four weeks only 1 lb. of weight had been regained. A stationary period followed and then a slow gain to 15 lb. 13 oz. on May 27. On this date, acting on a suggestion from Dr. Levy Simpson, we started a course of desoxycorticosterone, having previously stopped all other treatment for a week. This substance was given daily by inunction, 10 mg. being used each day for twelve days and then 20 mg. for a further six days. There was no improvement in the infant's condition, and the weight did not alter, being 15 lb. 13 oz. on June 12. One of us (B. G. S.) then suggested that we should use vitamin B_1 by injection; this was given as Betaxan, one ampoule, containing 2 mg. in 1 c.cm., being injected thrice a week into the muscles of the buttock. There was an immediate gain in weight of 8 oz. at the end of a week and an almost immediate change both in the infant's appearance and behaviour. The irritability became much less, and he no longer fought against his feeds. On July 11 his weight was 17 lb. 5 oz.—i.e., a gain of 1½ lb. in four weeks. He was happy and active, had no dislike for the light, and called a welcome to each entry of the food trolley. He was discharged from hospital on July 13. He has continued to attend as an outpatient for this treatment and when last seen, on August 15, he weighed 18 lb. 7 oz., a gain of 2¼ lb. in nine weeks. He was then a happy normal infant.

Although it has been generally considered that this disorder is due to a deficiency in diet, no method of treatment up to the present has produced an immediate response. A defect either in ingestion or in absorption of the vitamin-B complex has often been considered, and the use of preparations by mouth advocated besides many other measures, including liver extract, exposure to ultraviolet light, and protection from daylight. But the application of any or all of these has usually been followed by disappointment. Had we felt that our treatment was likely to be successful biochemical investigations would have been undertaken before beginning it. We are, however, satisfied in view of the dramatic recovery of the child that our clinical observations are likely to be confirmed by laboratory control. Here vitamin B_1 was not given by injection until a stage when spontaneous recovery might have been expected, but the improvement seemed too striking to have been part of the natural course of the disease.

REVIEWS AND NOTICES OF BOOKS

Rose Window

A tribute offered to St. Bartholomew's Hospital by twenty-five authors. Edited by L'ESTRANGE FAWCETT. London: William Heinemann. 1939. Pp. 385. 7*s.* 6*d.*

THIS is a charming book of original short stories, articles, poems and plays by a number of distinguished writers, contributed for the special purpose of raising funds for Bart's. No charitable motive need exist to ensure it a ready sale. Mr. Eric Linklater and Mr. St. John Ervine provide amusing tales with a definite medical flavour, and the two poems by Mr. de la Mare and Lord Dunsany are also mildly medical. The remaining contributions range from a cynical story in Mr. A. G. Macdonnell's best "Ace of Cads" manner to a beautiful fragment from a forthcoming novel of Sir Hugh Walpole's. Mr. J. B. Priestley has written what he terms a "Prologue to an Unfinished Novel," and is presumably awaiting an inspiration from Mr. Dunne for its completion—the final situation is certainly piquant. There are three lovely lyrics by Miss Radclyffe Hall and a poem in mystic vein by Mr. Edmund Blunden. Mr. George Preedy is responsible for an amusing one-act sally in playwriting. There are many other famous contributors including M. André Maurois, Mr. Noel Coward, Miss Vera Brittain, Miss Ann Bridge, Miss Marjorie Bowen and Miss Helen Simpson. The sole rights of reproduction of everything in the book have been made over to the hospital by the authors. Lord Horder's foreword is up to his usual standard in both rational eulogy and persuasive appeal.

Epidemic Encephalitis

Etiology—Epidemiology—Treatment. New York: Columbia University Press 1939. $3.

THIS third report of the Matheson Commission, unlike the earlier ones, gives some account of the commission's own activities, both in research and treatment, in addition to an analysis of published work. Since 1929 clinics have been held twice weekly for chronic cases (presumably of the epidemic form), while ample opportunities of seeing and treating all forms of acute encephalitis have been available to members of the commission holding hospital appointments. Laboratory research has been under the direction of Dr. Gay. Vaccines have been prepared from a modified herpetic virus, and it is stated that "in the acute stage the case fatality of treated cases has been less than half that of the untreated cases. Moreover, the neurological conditions have seemed to disappear more rapidly in treated cases," and "so far no treated patients have developed any indications of the chronic stage." But we do not know how many of the untreated cases became chronic, nor are we told in the "Table of results" (p. 9) the proportion of the various kinds of encephalitis. During the years 1930–37 88 cases of acute encephalitis were treated by vaccine, and 293 cases not so treated, but there is no indication how many were of the epidemic variety or how many associated with some infection such as measles. In the chronic stage "results have been on the whole encouraging and at times quite spectacular, when we compare the patients treated with the antivirus vaccine, particularly 'F,' with the groups treated with Rosenow's vaccine, and also with a group of 250 patients who received no vaccine at all but were treated by various other means." This, it would seem, refers chiefly to the chronic stage of epidemic encephalitis of Economo type, seeing the large numbers involved. Unfortunately the kind of benefit—whether in relief of rigidity, tremor, oculo-gyric attacks, or psychoses—is not stated. Spectacular results are occasionally seen after various forms of treatment. Three strains of virus from the St. Louis outbreaks of 1933 and 1937 have been isolated and studied; one of these has been maintained for 66 passages without loss of original virulence. The bibliography extends from the beginning of 1930, where that in the second report ended, up to the middle of 1937. In publishing these complete bibliographies the commission is doing a great service to the scientific study of encephalitis.

Infant Feeding

By V. L. COLLINS, M.D. Melb., former medical superintendent, Melbourne Children's Hospital. Melbourne: W. Ramsay (Surgical) Pty., Ltd. 1939. Pp. 72. 3*s.* 9*d.*

Dr. Collins has written this book to help medical students and the many young practitioners "whose confidence is more shaken by the cry of a baby in the surgery and the possibility that detailed instruction concerning his feeding will be required by the mother than by most other medical emergencies."

The pages are packed with details strictly relevant to the feeding of babies, normal and abnormal. After some general considerations about weight, progress and the nutritional requirements of an infant, successive chapters deal with breast feeding, artificial feeding, weaning and mixed feeding, with a final section on various abnormal conditions and the diet suitable in each case. Dr. Collins is a strong adherent of the boiled-milk school of thought, holding that even pasteurised milk should always be boiled or simmered before being given to a baby. He has a high opinion of many of the proprietary foods, the use of which he explains carefully. The doctor is advised, during his period of work in a children's hospital, to practise writing out the actual instructions he would give to a mother for whose infant he was prescribing, and he is reminded that hospital babies are not, as a rule, normal babies from the dietetic standpoint. The book should prove useful to those in charge of infant welfare centres.

May and Worth's Manual of Diseases of the Eye

(8th ed.). Revised by MONTAGUE L. HINE, M.D.Lond., F.R.C.S., surgeon to the Royal Westminster Ophthalmic Hospital; ophthalmic surgeon to Charing Cross Hospital; consulting ophthalmic surgeon to the Miller General Hospital for South East London. London: Baillière, Tindall and Cox. 1939. Pp. 536. 16*s.*

THIS manual for students and general practitioners contains a concise and practical survey of the main principles of ophthalmic medicine and surgery. The commoner disorders of the eye are described at length and many of them are illustrated in colour, whereas the rarer ocular diseases are rightly dismissed in a few lines. The chapters on therapeutics and the visual requirements of the public services will be especially helpful to practitioners. In this edition, which has been extensively revised, the classification of developmental defects and degenerative conditions of the cornea, choroid, retina, optic nerve and lens has been rearranged. The work of Cuenod and Nataf on rickettsia bodies in trachoma and modern conceptions about the pathogenesis of glaucoma are discussed. There are useful chapters on tropical ophthalmology and war injuries, including the effects of poison gas.

The sections on optics and refractive errors have been rewritten and there is now a concise account of the principles of contact lenses and the indications for their use. Other new matter includes recent views about allergic disorders of the eyes, virus infections, the action of atropine and mioties, the treatment of retinal detachment by diathermy and electrolysis, corneal transplantation (keratoplasty), and orthoptic training for squint. Six new coloured plates illustrating seventeen ocular affections have been added. Some of the other illustrations are somewhat old and the mottled background of figs. 41 and 42 would perhaps justify new blocks in the next edition. Printing and reproduction are again admirable.

Karl Pearson

A Bibliography of his statistical and other writings. Issued by the Biometrika Office, University College. London: Cambridge University Press. 1939. Pp. 119. 6*s*.

IT was a saying of Karl Pearson's students that his holidays consisted in a reduction of his daily hours of work from 18 to 16. The substance of their belief may be found in the bibliography of his writings compiled by G. M. Morant and B. L. Welch, which lists 648 publications, both major and minor, and needs a subject index of 15 quarto pages to cover the range of K. P.'s interests. It is indeed an astounding record, remembering too the care that he lavished on all his work and the time that he devoted to teaching and helping others. So many medical-statistical titles catch the eye as one passes down the pages that it would almost seem necessary for a young medical man embarking upon a statistical foray to see first what Pearson had to say upon his subject matter. With this volume of carefully annotated entries he will have no difficulty in learning where to look. The book is admirably printed.

Electric Excitation of Nerve

By BERNARD KATZ, M.D. Leipzig, Ph.D. Lond., Beit memorial research fellow. London: Humphrey Milford, Oxford University Press. 1939. Pp. 151. 10*s*. 6*d*.

Macneile Dixon in his Gifford lectures[1] says that "today you are not in the mode in the best company unless you speak the language of science. Your accent is looked upon as provincial, and excludes you from intellectual society." Judged by this standard, Dr. Katz has produced a book with a high metropolitan accent. It is a review of the work which has been done on the problems of nerve excitation and in particular of electrical phenomena in the nerves. Physiologists have been attracted for many years by the phenomena observed when an electric current passes through a nerve, in the hope that they might throw light on the nature of the natural impulse in the nerve-fibre. After dealing with some fundamental observations about the stimulating efficacy of electric currents, such as the existence of a critical threshold, local summation, the strength-duration relations and the adaptation of nerve tissue to an electrical stimulus, Dr. Katz discusses the "physical" theories of nerve stimulation. He shows the gradual evolution of thought from the purely physical theory of Nernst and its modifications to what might be called the physico-physiological theories of Rashevsky, Monnier and A. V. Hill. He concludes that it is now possible approximately to describe the temporal and spatial progress of the events which lead to excitation and to its continuous self-propagation along the nerve, and that it is probable now that an essential part of these events is the flow of electric current normal to a cylindrically polarised membrane and the removal of its resting charge. But he thinks that the recent work has not added much more to our fundamental ideas about the propagation of the nervous impulse than was suggested many years ago by Hermann, Bernstein and Cremer. He looks forward to further advances when the single-fibre technique has been developed. This is essentially a book for the advanced physiologist and not for the man who speaks with a provincial or even a Cockney accent. To quote Macneile Dixon again, if a man supposes himself to understand the character of energy "he must enlarge his mind to embrace the possibility of half a dozen geometries, which would have made Euclid stare and gasp; he must attempt to visualise cosmic rays, and 'waves of probability,' and be aware, while he is attending to his income-tax forms, that he is a dweller in an exploding or stampeding universe."

1. Dixon, W. M., The Human Situation, London, 1937.

Practical Animal Biology

By T. L. GREEN, B.Sc., F.R.E.S., lecturer in education, University of Bristol. London: Allman and Sons. 1939. Pp. 276. 4*s*. 6*d*.

THE teacher of elementary biology is faced with the unenviable task of choosing a suitable modern textbook from the mass which have been written within the last ten years. Few are wholly bad but none is entirely satisfactory. The value of a book for practical work turns mainly on the quality of its figures. Some authors, attracted by the possibilities of photography, seem to forget that a realistic representation of a specimen, especially if it is unlabelled, is a waste of time. The student had far better look at the specimen itself. Most of the microphotographs in this book are for that reason useless and are anyhow of poor quality. On the other hand there are some boldly executed black and white diagrams which excellently fulfil the function of a dissection diagram—namely, to give the student a simple and clear idea of structural relations. With the help of these he can more easily tackle the actual specimen and discover for himself what it really looks like. A small section at the end gives some useful suggestions for simple physiological experiments.

Chordate Anatomy

By H. V. NEAL, professor of zoology, Tufts College; and H. W. RAND, associate professor of zoology, Harvard University. London. H. K. Lewis and Co. 1939. Pp. 467. 16*s*.

THIS is an abbreviation of a larger book by the same authors. Its outstanding merit is the excellence of its figures, most of which have been skilfully chosen from well-known standard works, supplemented by some good original diagrams. Free use has been made of stereograms or three-dimensional diagrams. This excellent method of making clear the fundamental structure of vertebrates, and particularly of their developmental stages, has not been sufficiently exploited. The discussion on early development is based on the traditional concepts of gastrula and germ layer, which have been largely superseded by the more dynamic concepts of modern experimental embryology. The book is in fact thoroughly morphological in outlook, as it is probably intended to be. But there is no doubt that anatomy is more interesting and easier to grasp if something is known of the forces which determine structure. As a companion for dissection it should however serve a useful purpose.

THE LANCET

LONDON: SATURDAY, JANUARY 13, 1940

TUBERCULOSIS IN NATIVE RACES

THE simplest and earliest example of the peculiarities of tuberculosis when it affects primitive peoples was in the isolated tribe in its native habitat. In general such untouched races show a low incidence of tuberculosis and tuberculin reactivity, but tuberculisation rapidly takes place on their first contact with European civilisation. Thus, FERGUSON [1] described an epidemic among the Canadian Indians in 1880 when they were forced to submit to white influence. Notorious too was the effect of transferring Senegalese troops to the European front in the last war.[2] Few of these troops were positive to tuberculin on arrival and tuberculosis took a disastrous toll, its form being of the first infection or childhood type. The problem is, however, now most serious where native agricultural populations are becoming industrialised. Here the proportion of tuberculin reactors may already be quite high, as was shown by ARONSON [3] for plantation negroes. Yet they suffer far more from entering an industrial environment than do their European co-workers. This has been only too clear among the American negroes who migrated during the post-war booms to the towns and remained to swell the ranks of the unemployed during the depression,[4] and among the natives migrating for short service to the South African gold mines.[5] Under these newer circumstances tuberculosis arises often as the breakdown of pre-existing disease or as the progress of latent infection rather than as first infection in virgin soil. But the disease still tends to be more exudative, more generalised, and more rapidly progressive than among adult Europeans, even though not necessarily of the childhood type.

The older view ascribed the apparently selective action of the infection on native races mainly to innate biological differences, but there is now a tendency to emphasise work and living conditions —with the consequent risk of intense exposure and deficient resistance—on the one hand and the factor of bacteriological immunity on the other. LYLE CUMMINS, who has lately published a comprehensive review of the subject,[6] takes a view which represents a balance between heredity and environment, and probably both are important, just as they are thought to be in determining the selective effect of phthisis on certain age-groups of Europeans.[7] Thus GREEN [8] found in Cleveland, Ohio, that the tuberculosis death-rate for white and coloured were similarly related to economic conditions, but that the coloured rate greatly exceeded the white in each economic group. The emphasis now being laid on social factors opposes the defeatist attitude that native races are just "different," and indicates lines of action within human control. The French army, for example, having learned their lesson in the last war, can bring their Senegalese into the present one already acclimatised by temporary quartering in France under good barrack conditions.

Among the native races under our control, both in Africa and in India, the situation is serious. On the Rand the incidence among natives during their service in the gold mines has fallen considerably in recent years, but this is only part of the picture. No figures are available, but the incidence among the Union natives as a whole is probably declining little if at all. All the cases discovered in the mines are, if able to travel, repatriated immediately to the native territories, and the majority are dead in two years. Since most of the natives do not work in the mines for more than a year at a time, the unknown number of latent developing cases must be added to their total morbidity. There is thus a continuous stream of infectious men returning to the territories from which are derived a return stream of new recruits. There are no sanatoria for the early cases detected and hardly any public medical service exists in the native territories.[5 9] In India tuberculosis is unquestionably on the increase. The public health commissioner [10] reports that the growth of industrialism, with its attendant evils of overcrowding and insanitary slums, and the rapid exchange of populations between urban and rural areas which modern transport facilities have made possible, are both contributing towards the dissemination of infection in the relatively uninfected rural areas. Bengal alone is said to have a million cases and a hundred thousand annual deaths. Yet for the whole of India the beds available in hospitals or sanatoria for tuberculosis were, until recently at least, only about two thousand. Moreover, until two years ago India had no national campaign against tuberculosis, and even now the national organisations are mainly financed by charity and much of the medical work is voluntary. There is certainly no dearth of doctors in India, in fact there has even been a plea for restriction of the supply on account of considerable medical unemployment. The state of affairs in India may reasonably be compared with that in the Soviet Union. As Sir CUTHBERT SPRAWSON [11] has pointed out, both are large,

1. Ferguson, R. G., *Trans. nat. Ass. Prev. Tuberc.* 1928, p. 5.
2. Borrel, A., *Ann. Inst. Pasteur*, 1920, **34**, 105.
3. Aronson, J. D., *Amer. Rev. Tuberc.* 1933, **28**, 617.
4. Opie, E. L., McPhedran, F. M., and Putnam, P., *Amer. J. Hyg.* 1936, **23**, 493, 515, 530.
5. Tuberculosis in South African Natives. S.A. Institute of Medical Research, 1932.
6. Primitive Tuberculosis. By S. Lyle Cummins. London: John Bale. Pp. 213. 10*s.* 6*d.*
7. Tuberculosis and Social Conditions in England. By P. D'Arcy Hart and G. Payling Wright. London: 1939.
8. Green, H. W., Tuberculosis and Economic Strata in Cleveland's Five-City Area. Cleveland, Ohio, 1932.
9. Annual Report of the Department of Public Health of the Union of South Africa. 1936.
10. Annual Report of the Public Health Commissioner of the Government of India. 1937. Pp. 55, 67.
11. *Lancet*, 1938, **2**, 1447; *Brit. med. J.* 1938, **2**, 1316.

mainly agricultural, countries, with a tremendous rural population now becoming industrialised. Yet in the Soviet Union rapid urbanisation and industrialisation have been accompanied by a notable decline in tuberculosis mortality, perhaps partly because the tuberculosis services have been expanded with characteristic energy so that one in every four doctors is now a specialist in this disease.

What should be done in our colonial empire? The standard of living of the rural communities must be raised and the living and working conditions of natives in the cities improved. The extent of the problem must be defined by combined social and radiological mass surveys. Risks of exposure must be reduced by education, diagnosis must be accelerated, particularly by follow-up of contacts, and there must be facilities for the isolation of advanced and the modern treatment of early cases. In the last tuberculosis number of the *Indian Medical Gazette* it is gratifying to see that the fatalistic attitude towards individual treatment, based largely on the predominance of cases not diagnosed till the advanced stages, is giving place to hope in collapse therapy and rest in bed, with properly planned institutions under the newly formed Tuberculosis Association of India. But it is difficult to see how these efforts can succeed without an improved standard of life for the general native population and a more generous financial allocation to the provision of adequate tuberculosis personnel. This is a grave consideration which must be faced squarely in all parts of our coloured empire, for it is the white man's responsibility to repair some of the ravages of the bacillus that he brought with him.

THE ATTACK ON RHEUMATISM

THE cynic directs one major criticism at the Empire Rheumatism Council; the secret and the cure of rheumatism are, he says, not likely to be discovered by an organised frontal attack. He points to the odd corners from which insulin and liver extract unexpectedly emerged, and observes that the campaigns against tuberculosis and cancer are still far from their objective. The council's reply is that the magic cure, if there be such, is only one of its objectives; the other is the stirring of the social conscience to provide prosaic but valuable treatment, already known to be well worth while, for the very large number of sufferers who lack it. Dr. TEGNER's report, summarised on p. 88, suggests that we have in nowise fully applied what we have already learned. It is in accordance with the English tradition that the pioneer work of a given social reform should be done by voluntary associations; the state is loth to initiate or to experiment, but will perform a task or "run" a service that is presented to it as a going concern. The Empire Rheumatism Council, in respect of half at least of its undertaking, is such an association, and since the majority of its members and prime movers are medical men it is to that extent an effort of the professional conscience towards social reform.

What happens to social reform in war? It goes by the board, says the cynic; you must secure your society before you can reform it; think of nothing but guns and butter till the war is over. Had London been made Guernica in September, that were good advice. It probably is a sound view for Finland today, and may yet be the only possible view for us, if the worst befalls. But it is a short-sighted view for Britain at the present moment, when our reserve of men and material is still immense. Compromise there must be between the claims of fighting and social services, but restriction of the latter at this stage would be wasteful and half-hearted. If it could be said rather that we are made of such stuff as can wage war and build a better democracy at the same time, we might begin to take some credit to ourselves.

That is the spirit in which Lord HORDER presents the council's third annual report. He records good progress in the council's work up to September, although at the cost of some inroad on its financial reserve. Since then, however, its treatment work has been gravely interrupted by the disorganisation of London hospitals, and kindred work in the red-cross clinic and in the spa hospitals has almost come to a standstill. An influentially signed letter in our correspondence columns this week points out how short-sighted is this policy. To allow the baths to lie idle and their skilled attendants to disperse will harm all classes now and will press with grave hardship on those who are wounded or invalided in war. Similarly, the excellent L.C.C. scheme for the prevention and treatment of rheumatic disease in children, and others like it, have been disorganised by the evacuation of children from the cities. On the other hand almost all the research workers supported by the council are still at work, and the council is satisfied with the progress of their investigations. The annual meeting, due in November, was waived, and the executive committee vested its powers temporarily in a war emergency committee of seven. This emergency committee proposes to do all in its power to keep the work of the council alive. Its plans must no doubt be elastic, but only those of us who wear blinkers will deprecate its effort, despite the war, to "make some progress towards the normal measures of defence against those enemies which never pause in the attack—the agencies of disease."

HOSPITAL LIBRARIES

AMONG the earliest arrivals at the first base hospital to be established in Scotland were two soldiers who both asked for a copy of the works of Shakespeare. The reason given by one was that he had never had a chance to read them before, while the other in normal times was a librarian who knew their value. The incident shows that hospital patients do not always want thrillers or other ephemeral literature. It was the last war which gave the impetus on both sides

of the Atlantic to the establishment of libraries for patients in hospitals. In this country they were organised under the auspices of the British Red Cross library by Mrs. GASKELL and Sir HAGBERG WRIGHT. In the United States the military authorities allowed professional librarians to be placed by the American Library Association in base hospitals. In Canada the lead was given by the McGill Alumnae Society. The American Library Association have recently published a textbook on hospital libraries by Miss KATHLEEN JONES,[1] a recognised authority. Under professional guidance reading has come to be regarded as a form of treatment. "Book selection for any hospital," she writes, "includes the careful reading of every book before it is put into circulation," and the same standard has been adopted in the patients' libraries in Paris. At the same time she reminds us that the reading of patients in a general hospital is much the same as the reading of the general public. In this country the public librarians carry that proposition to its logical conclusion and regard the hospital service as an extension of the home service. In the United States "doctors, nurses, occupational-therapy and social-service workers, clerks, electricians and others, all are privileged to use the library." The large English public library services, notably that of Manchester, also provide for the staff, but the libraries organised by the Red Cross are definitely restricted to the patients. The Red Cross library is now under the direction of Captain MALCOLM BULLOCK, M.P., and it has arranged for the despatch of books to the base hospitals in France, hospital ships, casualty clearing stations, and military and naval hospitals in England and the Empire. At home it is dependent on volunteers to distribute the books in the hospitals. In the United States volunteers are not altogether regarded with favour by the medical staffs, while a compromise has been effected in Montreal by professional libraries giving "apprentice courses" to volunteers. A somewhat similar arrangement is in operation in some towns in Great Britain, for example, Cardiff and Newport, Mon.

The working of a library in the large Michigan University Hospital is described by Miss DOROTHY KETCHAM in "One Hundred Thousand Days of Illness."[2] In providing for children who may be resident for a long time she considers that the trained librarian should also be a trained teacher. Unlike many of the American hospital libraries the Michigan Hospital one is not associated with a public library or any other channel of public funds. "The source of supply," Miss KETCHAM writes, "is entirely gifts of new and used materials plus the source of revenue from a central weighing machine available in the main lobby." An interesting detail in the working of this library is that patients are encouraged to write notes on the books for circulation. "The review by a patient," it is noted, "sets a value on the book that no other one could give to it. The librarian may be asked for her evaluation but it is really the patient's point of view which counts."

1. Hospital Libraries, Chicago. 1939. Pp. 208. 2$ 50.
2. Ann Arbor, Michigan: Edwards Bros. 1939. Pp. 477.

RETURN OF THE LONDON MEDICAL SCHOOLS

MOST of the London medical schools are now considering some degree of what Low calls "revacuation." The policy favoured by the individual schools depends on how satisfactory the arrangements for teaching in the sector hospitals have been, and on the number of beds now available for teaching in London. When the patients were sent into the country in September it was thought that the sector scheme could not work without the assistance of senior students, who were therefore evacuated with them. The Minister of Health now says that he is no longer justified in paying for the keep of students to assist at sector hospitals, though he may do it again later if there are actual air-raid casualties needing treatment. Students are not bound by any agreement to the emergency hospital scheme and are free to return to London if and when they wish. Some schools feel that they have gained more than they have lost by the distribution of students through the sectors. The London teaching hospitals are still compelled to reserve a third of their beds for civilian casualties and in some of them the remaining beds will not be adequate for the students. Further, the Prime Minister tells us that London is now no less likely to be bombed than it was in September, so that it may be unwise for students to return unless they must to hospitals in the central areas. On the other hand the deficiencies in clinical material in the London teaching hospitals could largely be made up by coöperation with adjacent L.C.C. hospitals, and work in the outpatient departments is steadily increasing. The transfer of many consultants from whole- to part-time service in the E.M.S. has also had the effect of reinforcing the teachers available in London at the expense of the country.

From the replies so far received to our inquiries addressed to the deans of the London schools (and summarised on a later page), it seems that most are bringing back as many clinical students as can be satisfactorily taught with the number of beds now available in London, while leaving a nucleus in those sector hospitals where there are sufficient teachers and patients to make it worth while.

Last week the Central Council of Recreative Physical Training conducted a special new year course for teachers of physical training at the Regent Street Polytechnic. It was attended by some 120 qualified women teachers from schools and colleges all over the country, and by organisers from various districts. Earl de la Warr, president of the Board of Education, sent the council his best wishes for the continued success of its work. "I am sure," he wrote, "that the council has every reason to feel encouraged by what it has achieved both before and since the outbreak of war, and I hope that it will tackle its future problems in the knowledge that the Government feels that its work has never been of greater importance."

ANNOTATIONS

DEAFNESS AND NATIONAL SERVICE

THE National Institute for the Deaf is anxious to do all it can to help the deaf and deafened to join in national service during the war. There are three categories to be considered, apart from those who may become deaf as the result of the war. The deaf and dumb from birth or infancy number 32,000, of whom about half are in employment or are seeking it. In the larger centres, where missions and welfare societies are active, the proportion of unemployment amongst the deaf is lower than amongst the general population, but it is much higher in rural areas. The second category, the deafened, consists of some 120,000 who became deaf in later life. The third comprises the partially deaf and deafened, of whom there are reckoned to be 4 million under sixty-five. Dr. Eichholz, in his classic "Study of the Deaf" in 1932, put the total number of people with some degree of deafness at 13 million. The core of the problem consists of about 80,000 deafened people who have had to give up their occupation, of whom 48,000 remain unemployed. These have not been trained from childhood like most of the deaf and dumb to help themselves and be fitted into some suitable vocation. Their increasing deafness has gradually cut them off from their fellow-workers, from the society of their friends and from most outside interests. This applies in varying degree also to the great number who are partially deaf. The age of onset is of importance. A survey by the office of education of the United States covering 19,500 employed people who were deaf or hard-of-hearing showed that about 20 per cent. had started to be deaf in each of the five decades from twenty years of age onwards, and few earlier than that. In its handbook of information,[1] the National Institute sets out how the deaf are helped and how they may help themselves. There are at present few facilities for the retraining of the deafened for new occupations. Some employers have undertaken to train a small number of men, and the London County Council before the war intended to hold a special class for the training of the deaf as cooks. But the training centres of the Ministry of Labour will not take deafened men; nor will the centres for the retraining of cripples. Yet many of the deaf and dumb grow up to useful work in tailoring, and indeed they have fewer distractions and greater reason to give good service than sound persons. In the noisy trades such as riveting, boilermaking and weaving, too, workers are little affected by deafness. The problem consists of ascertainment, training and help in finding employment. The National Institute has suggested to the Ministry of Labour that a survey should first be made of one area to ascertain the proportion of deafened amongst the unemployed. Of these many will be found suitable for retraining who otherwise will remain unemployed. It is hoped that one section of a training centre may be allocated for retraining of the deafened. Then comes the selection of suitable occupations, the selection of suitable deafened people for retraining and the recommendation of trainees to employers. The practicability of such employment is shown in the report by M. L. Clark and Dr. G. P. Crowden on the employment of the deaf in the United Kingdom.[2] One large urban centre reports that most of its men marry and are therefore presumably able to earn at least a moderate livelihood. Another centre reports that of its deaf "school-leavers" 75 per cent. secure permanent employment. A residential school sends a list of 65 occupations carried on successfully by former pupils, who "through interest and care have become self-supporting and self-respecting." In another area a deaf and dumb man worked without any accident as a miner for 51 years, much of the time underground. Such a training scheme would be of great value for the working out of schemes for the war-deafened, of whom there may, unfortunately, be considerable numbers. As a result of the last war more than 34,000 deafened ex-service men were granted pensions. If these men were retrained in the early stages of war most would be able again to take some part in winning it, so bringing immediate and future benefit to themselves and a saving in pensions later.

1. All about the Deaf. 1939. National Institute for the Deaf, 105, Gower Street, W.C.1. 3*s.* 3*d.* post free.
2. Joint Report of the National Institute for the Deaf and the Department of Industrial Physiology, London School of Hygiene and Tropical Medicine. Obtainable from the National Institute, price 2*s.*

DISSOLVING URINARY CALCULI

THE dissolution of kidney and bladder stones is easy enough in vitro—success depends mainly on the choice of a suitable solvent—and alteration of the composition of the urine has a definite effect on these stones in situ, but there the results are uncertain. In the first place, difficulty may arise in determining the composition of an individual stone, and treatment aimed at the solution of a phosphatic stone is not likely to do much good if the stone is in fact an oxalate one. Points in the diagnosis were lately discussed in a report from the Massachusetts General Hospital.[1] Staghorn stones are almost invariably composed of calcium phosphate or cystin, and it is possible to tell which by the X-ray appearances. Whereas cystin stones are formed by the coalescence of several small stones of a uniform, waxy appearance, phosphatic stones have a lamellar structure because they grow by surface deposition. Examination of the urine when phosphatic stones are present may reveal an infection with urea-splitting organisms, and cystinuria may be demonstrated chemically in the case of cystin calculi. The oxalate stone shows as a "snow-flake" with radiating spicules. Failure of the stone to show at all in the radiogram is presumptive evidence of its being composed of uric acid.

In the stone clinic of the Massachusetts General Hospital experiments have been carried out to determine the best method of dissolving the various calculi. Cystin stones will disappear gradually if kept in an alkaline solution, and such stones can be dissolved from the pelvis of the kidney by the simple expedient of keeping the urine alkaline with a drachm of sodium citrate three times a day, or, as Higgins[2] points out, by giving an alkaline-ash diet. Calcium phosphate stones can be made to disappear in the laboratory by leaving them for a few days in weak acetic acid solution at a pH of 5·0, but keeping the urine at this pH for months does not as a rule make a calcium phosphate stone in the kidney dissolve. The reason is that acidity of the urine increases its power of holding calcium phosphate in solution, and therefore before the urine comes into contact with the stone in the kidney pelvis it is saturated with calcium phosphate. Methods have been tried by which the acid fluid is introduced from below into the

1. Albright, F., Sulkowitch, H. W., and Chute, R., *J. Amer. med. Ass.* 1939, **113**, 2049.
2. Higgins, C. C., *Ibid.*

bladder for vesical stones, and into the pelvis for renal stones. Some success has been obtained, though only a few patients have so far been treated. In one case several large phosphatic stones in an infected bladder were dissolved by tidal drainage, using a solution containing 45·2 g. of sodium citrate and 38 g. of citric acid to the litre of distilled water. An apparatus has also been designed for alternately introducing and withdrawing fluid through a ureteric catheter, and so dealing with a calcium phosphate stone in the kidney pelvis. More recent and less complete studies suggest that sodium hexametaphosphate solutions may be even more effective in dissolving phosphate stones than citrate.

GASTRIC CRISES

WHATEVER the reasons, the classical manifestations of tertiary syphilis are becoming increasingly rare. Aneurysmal aortas, gummatous livers and tabetic crises have almost disappeared from the outpatient department. While neurosyphilis is still anything but a rarity, tabetic crises are now so uncommon outside neurological departments that there is undoubtedly a tendency to overlook them in the differential diagnosis of the acute abdomen. According to Simons,[1] gastric crises arise in about 12 per cent. of tabetics. He also quotes Nuzum as finding over a five-year period at the Cook County Hospital that 97 useless operations had been performed on 87 patients who had gastric crises, thus giving force to Tilney's suggestion that the presence of a scar together with abdominal pain is one of the diagnostic signs of this condition. In the differential diagnosis there are two features, apart of course from the presence of neurological signs, which may be of value. One is the comparative lack of tenderness and rigidity, the other is the frequent rise in the blood-pressure during the crisis in spite of the presence of vomiting, repeated vomiting usually being accompanied by a fall in blood-pressure. Simons favours the view that there are three types of gastric crises: (1) due to involvement of the vagus and characterised by intense nausea, vomiting and gastric hypersecretion with little if any pain; (2) due to sympathetic stimulation, with severe pain, hyperæsthesia of the abdominal skin, and no vomiting; (3) the commonest type, characterised by some symptoms of each of the other two. As he himself admits, however, his evidence is far from convincing, and we have no really definite evidence as to the cause of these attacks. It is indeed rather surprising that these cases have not been studied more intensively of recent years by the neurologists and physiologists in their search for the pathways of pain transmission. The multiplicity of the remedies suggested reveals that there is no specific therapy. For the relief of the actual "crisis" Simons has little faith in the coal-tar derivatives and believes that morphia is usually necessary for the relief of pain, but most people would say that the former are worthy of careful trial. Failing them, chloral hydrate and bromides orally or per rectum, or sodium luminal intravenously, should be tried. It would be interesting to know how many patients have submitted to the rather heroic treatment that Simons mentions—bilateral chordotomy between the first and third cervical segments, possibly followed by "resection of the gastric twigs of the vagi." The intravenous administration of typhoid vaccine dissolved in neoarsphenamine, or even 5–10 units of insulin, both of which have been recommended at some time or other, seem to be rather safer procedures. Sedatives, hypnotics or opiates during the crisis, with full courses of antisyphilitic treatment in the intervals are undoubtedly the essentials of treatment and will continue to be so until syphilologists banish the syndrome altogether or neurologists devise a satisfactory method of interrupting the pathways of the pain.

1. Simons, D. J., *Amer. J. Syph.* November, 1939, p. 782.

MALARIA IN WAR

IN his presidential address to the Royal Society of Tropical Medicine and Hygiene Sir Rickard Christophers [1] raised a number of pertinent questions regarding malaria in war. Two of the most important were to what extent drugs can protect against the disease, since in the exigencies of military operations it may not always be possible to employ more fundamental measures, and how frank attacks can be most rapidly and efficiently controlled. Some time ago, the Health Organisation of the League of Nations [2] expressed the general conclusion that there was no drug which could with certainty be employed as a true causal prophylactic agent against malaria. While plasmoquine is particularly toxic for sporozoites, doses sufficient to prevent infection in practice are also toxic for man, and similarly the finding of Sinton, Hutton and Shute [3] that sulphanilamide drugs can prevent infection with *Plasmodium falciparum* remains for the moment no more than an interesting experimental observation. Furthermore, although neither quinine or atebrin is a truly causal prophylactic drug, as experiments and experience show, nevertheless the regular use of one or other of these agents by the individual does tend to keep infection below a level at which clinical manifestations are produced. Field,[4] writing from Malaya, thinks atebrin is more efficacious than quinine, but whereas quinine can be issued without fear atebrin probably requires more careful control in its mass administration. During military operations the simplest thing seems to be to follow the advice of James,[5] and forgetting the scientific evidence that quinine does not prevent infection to give everyone exposed to risk of malaria gr. 5 of quinine daily. It may even be as Sinton [6] seems to think that some degree of immunity develops from subclinical infections acquired while taking "prophylactic" quinine or atebrin. Such a hypothesis might explain those cases in which a primary attack arises only after a prolonged incubation period in those who have previously taken prophylactic quinine, as in the case of the infection with *P. ovale* recently recorded by Murgatroyd, Findlay and MacCallum.[7]

For the treatment of acute malaria, quinine or atebrin is the drug of election, and in many respects there is little to choose between them, although in malignant tertian infections blackwater fever appears to occur less often with atebrin than with quinine. An adequate treatment to control any malarial attack is 30 grains of quinine or 0·3 gramme of atebrin in three divided doses daily for four or five days. Some also employ small doses of plasmoquine with the quinine or after the course of atebrin, in the belief that this procedure reduces the relapse rate. With any treatment, however, there may be a relapse and there has been much speculation to explain this; whether it is dependent on some exo-erythrocytic cycle is yet to be shown. Hutton and Shute [8] have recently focused attention on the risk of transmitting

1. *Trans. R. Soc. trop. Med. Hyg.* 1939, **33**, 277.
2. *Quart. Bull. Hlth Org. L.o.N.* 1937, **6**, 895.
3. *Ann. trop. Med. Parasit.* 1939, **33**, 37.
4. *Bull. Inst. med. Res. F.M.S.* 1938, No. 2.
5. *Trans. R. Soc. trop. Med. Hyg.* 1933, **33**, 301.
6. Report of the 3rd International Congress of Tropical Medicine and Malaria, Amsterdam, 1938, p. 312.
7. *Lancet*, 1939, **1**, 1262.
8. *J. trop. Med. Hyg.* Oct. 16, 1939, p. 309.

malaria during blood-transfusion, particularly when using donors from the services, since many of the regular troops have served in India or in other malarious regions. It is true that malarial infections usually die out spontaneously after the lapse of some months, but exceptionally parasites persist, especially in quartan infections. Nabarro and Edwards [9] have recorded a case where an infant died from such an infection accidentally transmitted to it by transfusion from a donor who had not been in a malarious area during the previous twelve years. Hutton and Shute point out that all species of human malaria parasites are able to survive for days or even weeks in blood stored at temperatures round about 4° C., so that such storage does not necessarily remove the risk of infection. Consequently, donors should be selected with care, and in all cases where a recipient develops pyrexia of unknown origin following a blood-transfusion the possibility of malaria should be borne in mind.

CAPTAIN COOK'S TRIUMPH

THE true foundation of Captain Cook's success lay, as Admiral Muir proves in a new life [10] of the great navigator and explorer, in his preservation of the health and comfort of his crews. Before Cook's voyages the story of British ocean exploration had been too often one of disaster, redeemed from absolute failure only by the heroic determination of the few survivors. Thus Anson, in his circumnavigation of the world, lost 620 out of his 960 men from preventable disease before half the voyage was completed. The scourge which accounted for the greater part of this dreadful mortality was scurvy. Overcrowding and the absence of the most simple sanitary precautions gave an added virulence to the defects of the dietary, and the deaths were no doubt often precipitated by infection supervening in frames weakened by the lack of fresh food. Cook was the first seaman fully to apply the knowledge of the means of preventing this mortality, which was already available but had been either wholly ignored or only partially put into practice by a few of the shrewdest sea-captains such as Cook's life-long friend, Sir Hugh Palliser. Cook set out on his first voyage of exploration determined to avoid the errors and omissions which he knew well to be the main causes of the trouble. His success was so complete that the *Endeavour* returned to England at the end of three years without the loss of a single man from scurvy, only five men having been slightly affected and rapidly cured. Such an achievement was unheard-of, and was perhaps a more valuable contribution to Britain's naval supremacy than all the territorial and scientific discoveries made by Cook and his companions. In the avoidance of fever and dysentery, two other dreaded enemies of the voyager, Cook was equally successful until he was compelled to spend some weeks refitting his damaged ship at Batavia. His crew there became infected with dysentery and he lost 31 of them. Yet at the end of three years he returned to England with more than two-thirds of his original crew in health and vigour. Admiral Muir tells this story with its appropriate background of ignorance and insensibility among the ordinary run of commanders, and of the corruption and chicanery which at that time were the usual features of the navy departments. But there was little to complain of in the outfitting of Cook's vessels, and in its dealings with him the Board of Admiralty showed an active goodwill and a readiness to accept suggestions which were in striking contrast with what is usually alleged to have been the incompetence and dishonesty of Lord Sandwich, the "Jemmy Twitcher" of his associates.

9. *Lancet*, 1939, **2**, 556.
10. The Life and Achievements of Captain James Cook, R.N., F.R.S., explorer, navigator, surveyor and physician. By Surgeon Rear-Admiral John R. Muir. London: Blackie and Sons. 1939. Pp. 310. 10*s.* 6*d.*

THE SUGAR IN THE C.S.F.

THE sugar in the cerebrospinal fluid is diminished and the lactic acid increased to different degrees in different kinds of meningitis. The mechanism by which this happens is still doubtful, but three possibilities seem most probable. There may be reduced permeability of the choroid plexus to sugar, or sugar may be destroyed in the cerebrospinal fluid itself by the action either of bacteria or of the white cells. Dr. Hendry [1] of Glasgow has investigated these alternatives experimentally. By giving glucose intravenously, and observing the sugar content of the cerebrospinal fluid in seven cases of tuberculous meningitis after the lapse of ½–1 hour, she showed that the increase of sugar in the cerebrospinal fluid is in no way less than in a small number of non-meningitic controls. The fact that the ratio of chlorides and non-protein nitrogen in blood and cerebrospinal fluid is unaltered in all forms of meningitis at all stages confirms the notion that it is not the blood-brain barrier that is altered. Further evidence for a destruction of sugar in the cerebrospinal fluid comes from the observation of a rise of lactic acid simultaneous with the reduction of sugar, and a great increase in the ratio of cerebrospinal to blood lactic acid. By incubating normal sterile cerebrospinal fluid with cultures of various bacteria (*Staphylococcus albus* and *aureus*, meningococcus, pneumococcus, *Bacterium coli* and human tuberculosis), and with sterile emulsions of polymorphonuclear leucocytes and lymphocytes, Hendry demonstrated that only in the presence of polymorphonuclear leucocytes and *Bact. coli* is the sugar content of this incubated cerebrospinal fluid much reduced. This finding was corroborated clinically, for in cases of meningitis she showed that the sugar level varies inversely with the polymorphonuclear count, and quite independently of the presence of bacteria in the cerebrospinal fluid. Further, in two cases of meningitis due to *Bact. coli*, there was no sugar in the cerebrospinal fluid.

RICKETS

IT must be galling to the research workers, laboratory and clinical, who have given the whole story of rickets a reasonably simple explanation in terms of vitamin-D deficiency, to find Dr. R. W. B. Ellis [1] writing "although the incidence of rickets in England has been greatly reduced in recent years, mild cases are still seen too frequently even amongst infants attending welfare clinics." Ellis has analysed the value of irradiated milk in infant feeding in its relation to the prevention and cure of rickets. He employed a commercial unsweetened condensed milk with a calorie value of 53 per fluid ounce. When reconstituted to the original cow's milk strength the vitamin-D content is about 165 international units per quart. Irradiation with a carbon-arc lamp is part of the process of manufacture. Twenty normal full-term infants, who had received no previous anti-rachitic treatment, were examined clinically and radiologically for evidence of rickets, and in the absence of this were given irradiated milk in formulas appropriate for their age. Orange juice was also supplied with a usual programme of mixed feeding from the age of 6 months. After 3 months one of

1. Hendry, E., *Arch. Dis. Childh.* 1939, **14**, 307.
2. *Ibid*, December, 1939, p. 295.

the infants had mild active rickets and two showed radiological evidence of healed rickets. Four patients showed clinical signs suggesting rickets after 3–6 months' treatment but no radiological changes. The remaining patients were normal, and Ellis concludes that although the brand of irradiated evaporated milk used will serve to protect the majority of full-term infants from manifest rickets it cannot be relied on to do so in all cases. As regards the curative properties of the milk, Ellis used it as the sole source of vitamin D for seven infants suffering from active rickets. He was able to detect the start of healing in all cases in from 1 to 3 weeks. This indicates the definite antirachitic power of the milk but no-one would select it as the most rapid or perfect means of curing rickets. It might be argued that reliance upon irradiated milk is responsible for the frequent cases of mild rickets which all pædiatricians deplore, but this milk may nevertheless have a place in infant feeding if a vitamin-D supplement is used as well. Ellis is tantalisingly silent on the question of cost, and it is reasonable to suspect that economies rather than lack of the application of scientific knowledge explains the present-day occurrence of mild rickets.

Further evidence that even school-children may have rickets of a latent type is afforded from another angle by Crowley and Taylor,[3] who have attacked the problem of anæmia and rickets. They found in twelve children, between 6 and 12½ years, an iron-resistant, hypo- or ortho-chromic anæmia associated with biochemical evidence of rickets in the shape of a low inorganic blood phosphorus. Very large doses of a synthetic vitamin-D preparation (200,000 international units twice with 14 days between) restored the phosphorus values to normal within a month without influencing the anæmia, which was, however, cured when ferrous sulphate, gr. 70 weekly, was administered at the same time as the vitamin D. Previous tests had shown that the anæmia would not yield to iron alone, and it is suggested that adequate supplies of vitamin D are essential in children of this type if iron is to be properly utilised for blood formation. The work of Crowley and Taylor also indicates quite clearly that such children have not been having adequate supplies of vitamin D. The crux of the rickets problem lies in the question "Why not?"

44 HOURS IN THE WEEK

EVEN during this time of eternal stress the advance of social legislation goes on. On Jan. 1, the provisions of section 70 and 71 of the Factories Act 1937, relating to the hours of employment of young persons, came into operation. It was originally intended that July 1, 1939, should be the date after which no person under 16 years should be permitted to work more than 44 hours per week, but the date was further postponed for 6 months. No-one today doubts the need to restrict the working hours of adolescents in the interest of their health. As long ago as 1819 the first Factory Act to limit the age at which children could be employed was passed, but it applied only to the cotton industry. Until 1874 it remained legal to employ children of eight; persons still alive have talked with workers who remembered as children being lifted upon their stools when work began, and lifted down again at the end of the day. In 1901 the hours of work of young persons were defined. Briefly stated the provisions that now come into force are these. No young person under 16 years may work more than 44 hours per week exclusive of meal-times and of allowed rest periods (§ 71). Such young persons may not be employed overtime (§ 73). The period of their employment may not in any day exceed eleven hours nor begin earlier than 7 A.M. or end later than 6 P.M. on weekdays, 1 P.M. on Saturday (§ 70b). No spell of work may last more than 4½ hours or 5 hours if a rest-pause is allowed (§ 70c). These new provisions apply to all types of factories, textile and non-textile. They admit of no exception unless the Secretary of State after inquiry has issued special regulations for a particular industry or process. Before he can issue regulations he must be satisfied as a result of the inquiry that any particular class of factory or process is so dependent on the employment of young persons under 16 and so organised that it would be seriously prejudiced by a 44-hour week for young persons under 16; that increased hours would not prejudicially effect the health of the young persons; and that the work is particularly suitable for young persons and will help them to train for permanent employment in the industry. No such inquiries have been reported and, as far as we are aware, no special regulations have been issued. It appears therefore that from the first day of the current year no person under 16 years of age will be legally working longer than 44 hours in the week.

3. Crowley, N., and Taylor, S., *Ibid*, p. 317.

PRESIDENT OF THE MEDICAL COUNCIL FOR INDIA

Mr. BIDHAN CHANDRA ROY, M.D. Calcutta, M.R.C.P., F.R.C.S., has been elected president of the Medical Council of India. The council came into being with the Indian Medical Council Act of 1933 and for the first four years its presidents were nominated by the Governor-General. The director-general, I.M.S., held the post by virtue of his office until November, 1937, when Major-General E. W. C. Bradfield became the first elected president. He resigned on his retirement from the director-generalship to become medical adviser to the India Office. The council, two-thirds of whose members are elected by Indian universities and qualified medical graduates and one-third nominated by the central and provincial governments, at its session in October last unanimously elected Dr. Roy as its president. Dr. Roy has well earned this distinction by his work for the council, since its inauguration, both as a member of its ex-committee and on the several special committees which drafted its rules and by-laws. He is a distinguished Calcutta physician who did good work as elected mayor of Calcutta corporation in 1933; he has been professor of medicine at the Carmichael Medical College (Bengal) since its foundation in 1916. As a member of the governing body of the college, as well as of the senate and faculty of Calcutta University, Dr. Roy has had an extensive experience of medical education in India, and the council are to be congratulated on its choice of a president who is well fitted and anxious to maintain the high standard of graduate medical education in India.

Surgeon Captain T. B. DIXON, V.D., M.R.C.S., R.N.V.R., has succeeded Surgeon Captain L. S. Ashcroft as honorary physician to the King.

Dr. WILLIAM ISAAC FERN, who died at Congleton on Dec. 29, had been four times mayor of the borough and his office coincided more than once with a royal visit. He qualified from Owens College in 1887 with Irish and Edinburgh diplomas and spent his whole life in Congleton where he was a borough magistrate and chairman of the watch committee. Five years ago he received the freedom of the borough in recognition of his many services to the community.

SPECIAL ARTICLES

REGIONALISATION OF PATHOLOGY

By S. C. Dyke, D.M. Oxfd, F.R.C.P.

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Pathology, using the term in its widest sense as the physiology of morbid states, is the foundation on which the modern fabric of medicine is in course of erection. The laying of that foundation is largely in the hands of workers in laboratories of all sorts, sizes and descriptions throughout the country—at present with little or no coördination. Many are hampered by lack of funds; others with ample funds available fail to concentrate on their proper spheres; some waste their powers in competition for remunerative work. The call is urgent for the better organisation of a department of medicine so important to the national health and well-being.

In the hospital service of the nation the teaching hospitals form a class of their own. In them it is now generally recognised that teaching without research is as dead as faith without works, and that the reputation for teaching which will attract the best students can only be founded on a reasonably efficient school of pathology. They have in the natural course of events developed, some more successfully than others, facilities for the pursuit of pathology. The non-teaching hospitals are in different case. For diagnosis and the control of treatment the pathological department matters as much to them as to the teaching hospitals; the stimulus of the attraction of students is, however, absent. Moreover, they are numerous, scattered and ill-coördinated, and differ greatly in size, organisation and scope of work. The only feature common to all is a chronic shortage of funds. Such funds as they have at their disposal must be devoted to the immediate needs of the patients or to purposes likely to appeal to the sentimental public. Boards of management can hardly be blamed if, when the choice lies between an operating theatre (or even a nurses' gymnasium) and a new pathological department, it is the latter which goes to the wall.

Under the circumstances it is to their credit that so many of the voluntary non-teaching hospitals have established pathological departments and have developed them as well as they have done. Not the largest and best equipped of them equals in size, staffing or equipment the smallest of their opposite numbers in the teaching hospitals; none the less good work is done in some of them and better still would be done did their funds permit of adequate staffing and equipment.

Faced with the necessity of raising funds for their pathological departments the non-teaching hospitals have tried various expedients. Almost always they have done their best to encourage a flow of paid work to their laboratories. In many provincial centres arrangements have been made for the laboratory work required by the local public-health authority to be done in the pathological department of the voluntary hospital serving the area. On the face of it there is much to be said for this arrangement: it saves the local authority the cost of building and maintaining its own laboratory, and such disbursements as are made from the public funds go to increase the efficiency of the voluntary hospital serving the area. Were it not for the financial assistance received from this source many voluntary hospitals, and these some of the most progressive in the provinces, would be unable to maintain pathological departments of even reasonable efficiency.

Had local public-health authorities everywhere been able to see eye to eye with the voluntary hospitals in this direction, a national pathological service might have developed round the departments of the voluntary hospitals. For better or for worse they have in many and important instances been unable to do so. Many public-health authorities have established their own laboratories. In so doing they have withdrawn from the hospitals any hope of assistance from this quarter for the support of their pathological departments; the prospect of building up a nation-wide pathological service by coöperation between the local governmental authorities and the voluntary hospitals has disappeared and other means must be sought.

TWO DISTINCT SERVICES

A necessary preliminary to the construction of a nation-wide pathological service is a proper understanding of the respective rôles of public-health and clinical pathology. These are two very different branches of the service; there are few if any senior pathologists capable of themselves doing or directing work equally well in both. It is unfortunate that in establishing laboratories primarily for public-health work local authorities have almost invariably lost sight of this distinction and have been led to make excursions into the field of clinical pathology. The reasons for this are various; the most legitimate is that much clinical work must under present arrangements fall to local authorities—this, however, is no argument for doing it in laboratories the proper scope of which is public-health work. A less legitimate reason lies in the human tendency to aggrandisement—this has led some public authorities to make the facilities of their laboratory service widely available for all and any types of pathological investigation and even to attempt to make a corner in coroners' post-mortem examinations.

Public-health work is a vastly important branch of medicine and its full performance demands throughout the country well-equipped and staffed laboratories considerably in excess of the number now existing. In many areas facilities are at present lamentably deficient; in others laboratories exist but in sites chosen with a view to local governmental boundaries and official convenience rather than to the actual needs of the population. The state of affairs is exactly comparable to that of the national hospital service. In both cases local governmental divisions are proving a hindrance rather than an aid.

Pathology, in fact, public-health and clinical alike, stands in need of "regionalisation." In the case of the former this step would interfere with the powers of local authorities. In the case of clinical pathology it is fortunate that there are no strong vested interests. The need to regionalise the hospitals is now widely admitted and clinical pathology should be regionalised at the same time. It is an essential part of the hospital service and funds must be found for it. Thanks to the generosity of Lord Nuffield this may soon be the case.

Clinical pathology can only properly be practised by those in close and constant touch with clinical medicine. The laboratory must be an actual part of a hospital, preferably in the same building and certainly in the same grounds. But hospitals differ one

from the other in magnitude and all do not require pathological departments of the same size. In a general hospital of 300 beds or over the laboratory should be capable of dealing with every procedure in general use in clinical diagnosis and research. In the smaller hospitals it should deal quickly and efficiently with immediate clinical problems—able to set investigation rolling whether or not it can follow the ball unaided to the end of its course.

The regions of clinical pathology should be those of the hospitals. In any region one hospital would serve as a centre and of this the main clinical pathological laboratory of the region would form a part. All other hospitals of the region working in coördination with each other and with the control hospital would have their own departments, their size, equipment and staffing depending upon the nature and scope of the work of the individual hospital. Whether the supervision and coördination of the clinical pathological work in a region should be entrusted to one or to more than one individual would probably depend upon the size and local circumstances of the region. Those entrusted with this work would require to be conversant with all branches of laboratory work as applied to clinical medicine and, further, to be at home in the wards as well as in the laboratory. Their headquarters would naturally be in the laboratories of the central hospitals but they would be available as consultants and advisers to their colleagues throughout the area.

STAFFING

Working with the principal pathologist in the central hospital laboratory would be a medically qualified staff, its size dependent upon the size and importance of the laboratory. The smaller hospitals in the region would require smaller staffs of less senior workers. The most junior members of the staff would be resident assistant pathologists and of these every hospital should have at least one. In the smallest hospitals the medically qualified staff would consist of the resident assistant pathologist alone. This post would serve as the entrance to the pathological service; probably it would be advisable that no-one should be admitted to the full benefits of the service until after a minimum of two years' service he had made it plain that he had a true vocation for clinical pathology. The post of resident assistant pathologist would always be combined with that of blood-transfusion officer to the hospital; the efficiency both of the work of the laboratory and of the wards would in some cases be aided by appointment of the resident pathologist to a post such as resident medical officer or medical registrar giving him a footing in the wards.

As with medically qualified so with technical staff. The requirement of the different laboratories in the region would vary; the largest would comprise specialists in histological, biochemical and bacteriological technique. Before specialising all technicians would have to make themselves familiar with the fundamentals of all branches and those attached to the smaller laboratories might have to practise all. Apart from staffing pathological laboratories are not expensive either to establish or maintain. Given efficient and ample staff a laboratory may do excellent work in spite of cramped quarters and makeshift equipment; conversely, spacious quarters and expensive equipment will of themselves produce nothing. The main cost of the service would be in salaries. The scale must be adequate to attract the best brains and to ensure a decent livelihood. It has been urged that those who find themselves standing at the foot of an ascending wage scale may give up active interest in their work and remain at the level of competent routineers. It should be possible to sort out in their probationary period those of whom this is true. Probably many potentially good workers are prevented by financial worries from doing their best. The salary scale should be arranged to function as a staircase which must be climbed by active effort rather than as an escalator.

The services of certain senior members of the staff would have to be available for consultation outside as well as within the hospital. To limit them to hospital work would be to discriminate unfairly against the general public not making use of the hospitals. When peace returns this section may well be neither so large nor so important as it is now. The problem of "private" practice should be solved when it arises on a basis of free discussion, due regard being paid to local conditions and without dictation from a central authority.

The technical like the medical staff of the service would form a unified body with a salary scale standardised within the region. This would at once remove one of the major difficulties of voluntary hospital pathological departments which now find it impossible to compete with salary scales in laboratories supported from the rates. Cost of living varies in different parts of the country and the scale would not require to be the same everywhere. As in the case of the medically qualified admission to the technical staff would be preceded by a probationary period. Once admitted to the service the technician, as now in the municipal services, could look forward to a definite scale of salary increments and to superannuation on retirement. The technical division of the L.C.C. hospital service makes an excellent model.

LIAISON

While in their ordinary work the public-health and the hospital laboratories would be separate, it is neither possible nor desirable for the two series of institutions to be entirely divorced. From time to time the one would need to seek the help of the other and certain research problems, particularly bacteriological, would serve as common ground. Moreover, pathology as applied to public health and to clinical medicine within that region would find its common head in the appropriate committee of the regional council.

Few of those not intimately concerned realise how much good material and how much good will to make use of it is now wasted for lack of funds to provide adequate staff and equipment in the pathological departments of the provincial voluntary hospitals. The full development and coördination of these departments would probably do more to advance medical knowledge and practise than any other single step. Such a development need entail little disturbance of local arrangements nor would it call for any interference from a central authority. The simple expedient of a regional pool of funds from which grants might be made or withheld, dependent upon the willingness or otherwise of applicants to set their houses in order, would speedily establish such conformity as might be advisable. I should like to see Lord Nuffield's recent benefaction used as a regional pool of this sort. I believe the cost of establishing and maintaining regional pathological services would not be so great as many people imagine. Much could be saved by elimination of waste, competition and reduplication. In any case the cost would be repaid by increased efficiency.

AN INTERNATIONAL SURVEY OF RHEUMATISM

A GREAT variety of acute and chronic diseases is still included, even by national and international usage, in the category of the rheumatisms. And yet there may well be a doubt whether any one name is sufficiently comprehensive rightly to embrace them all. Three forms of disease may be said now to be clearly distinguished in this large bundle: (1) the well-known malady called acute rheumatism or rheumatic fever, affecting mainly children or young people, which, with or without implication of the joints, always affects the heart; (2) the crippling disease called rheumatoid or atrophic arthritis, often seriously invaliding young women, which brings about destruction of many joints but does not affect the heart; (3) a local rather than general disease of the joints, often excited by injury in advancing life and called degenerative or hypertrophic arthritis or osteoarthritis. In addition to these three main types there are two other well-marked clinical groups: (1) the often acute arthritis following specific fevers or gonorrhœa or accidental focal infection; (2) a chronic invasion beginning in the knee-joints, nearly always in women in middle or later life and hence known as climacteric arthritis, in which traumatic, degenerative and metabolic processes appear to be involved.

CAUSATION

Whether, or to what extent, specific or septic invasions are involved in the development of all these forms of disease is not fully determined. In any case it is clear that individual liability, sex, age, exposure, wear and tear, traumatism, metabolic errors, evolutionary and dissolutionary processes, in addition to both kinds of infection, are possible factors of causation. It is not unreasonable to think that from such a wide ætiological field many kinds of disease may be produced. In medicine, as elsewhere, old names are often outworn; as the bundle increases, the tie weakens. It may be that some of these more strongly marked types will before long be clearly differentiated on clinical and ætiological lines. Such a classification, if well established, would certainly be an advance in diagnosis, and—even more important—would furnish a more rational basis than at present exists for preventive, remedial and palliative treatment.

An international survey of the current work on rheumatic disease, extending over ten months and covering many rheumatism centres in Europe and the United States, has now been completed by Dr. W. S. Tegner, and published by the Empire Rheumatism Council.[1] The author has made fruitful contacts with the medical men in charge of these centres, and describes from personal inquiry the research work in actual progress before the outbreak of war and the various methods of treatment and theories of causation that are in vogue in different countries. A mass of information is presented, with comment, some of which should be of real value in planning any national scheme for the prevention and cure of rheumatic disease. The entire report is worthy of the close attention of medical men who are interested in rheumatism.

Increasing interest is everywhere shown in the problem of causation, some Continental workers expressing confidence that they have found the "right key." Septic foci are generally regarded in Germany as the dominant factor in all forms of rheumatism, but both in America and Europe there is a wide divergence of views as to their importance in rheumatoid arthritis. In America especially importance is attached to a "suitable soil," and even to psychological factors. The streptococcal theory of rheumatoid disease is widely discussed in the States, but no clear conclusions have been reached. The view is becoming more common that all the chronic rheumatisms, more perhaps than any other group of diseases, proceed not from any one cause, but from a combination of causes.[2] A sound treatment must therefore be directed against all conditions which contribute to the disease. Incidentally, "fibrositis" is not generally recognised in the States, and "gouty arthritis" remains a common diagnosis at the European spas.

INTERNAL TREATMENT

Never was there such a spate of popular nostrums as at the present time. Happily at none of the centres visited can any trace be found of "closely guarded secrets," nor, on the other hand, is there evidence of that therapeutic nihilism which was at one time so common in medical circles. The indifference to the problems of rheumatism is giving place to a new scientific curiosity. It is held by some of the more active workers that practitioners now have at their disposal means of treatment that can at least alleviate the great majority of cases. Systematic protection against traumatism in every form—physical, bacterial, chemical, psychological—is coming to be regarded as a chief objective. It is rather surprising that the influence of climate, whether causative or remedial, appears to be but little regarded at the centres. Clinics and sanatoria are set up in widely different climatic conditions, on the coast and inland, sheltered or exposed, and research is at present entirely lacking on the effects upon rheumatic patients of the common climatic factors—winds, damp cold, subsoil, mists, and variations of temperature and pressure. It is in hopes of shedding more light on these questions that new work in bioclimatology has in recent years been instituted at several European health resorts.

The treatment of rheumatoid arthritis by gold is far commoner in Europe than in the United States, but at certain European clinics serious warnings against its use, unless in extremely small doses, have been expressed. For a climacteric arthritis œstrogenic endocrine substances are now being employed on both sides of the Atlantic. Protein shock in its various forms is still often used, especially by the German school, and at the Mayo Clinic. Vaccines, which have been claimed by some to be specific, are in other quarters condemned, and stock vaccines disapproved. Although the injection of dead organisms for the production of immunity to diseases which they cause is a sound and proven procedure in preventive medicine, their use in rheumatoid arthritis cannot be endorsed or rejected. In the United States vaccines prepared from streptococci, hæmolytic or otherwise, are often used, although it is not clear that these organisms are causative.

PHYSICAL AND OCCUPATIONAL THERAPY

Physical treatment, in one form or another, is almost everywhere approved as an essential part of the treatment of all rheumatic conditions. In many centres, and of course at the spas, it is the chief therapeutic

1. The Treatment of the Rheumatic Diseases in the United States and the Continent of Europe. By W. S. Tegner. *Ann. rheum. Dis.* October, 1931.

2. See The Evolution of Chronic Rheumatism, with treatment to correspond. By R. F. Fox, 1938.

factor. The value of heat in particular is everywhere acknowledged. It is, however, to be remarked that nothing approaching a standard form of physical treatment for rheumatism has been established. For example, in lumbago the favourite method in Great Britain is the infra-red ray; in Amsterdam the ultra-violet; in Leyden long-wave diathermy; in Denmark cold packs at one clinic and short-wave diathermy at another. This is rather a strange position for any recognised branch of therapeutics. Why are not the physiological reactions that take place in rheumatic conditions under physical treatment established by therapeutic research? Why are the numerous centres for the treatment of rheumatism left, in the main, without the guidance of scientific data? No country is at present taking the lead in this matter.

The use of baths at the spas is worldwide and traditional in the case of rheumatism. Since the last war certain hydrotherapeutic methods have been set up in hospital departments and clinics in the towns. In Copenhagen a method has been developed reminiscent of Winternitz and his pupils, in which radiant heat is followed by cold packs. In this connexion Ferderber of the Pittsburgh school of medicine has compared the effects of moist with those of dry heat, and finds that moist heat increases the circulatory volume more than twice as much as dry heat, and more than half as much again as short-wave diathermy. With reference to artificial hyperthermia, variously produced, small repeated doses are often used for rheumatoid disease.

Occupational treatment, which has aroused little interest until lately in Great Britain, has attracted much notice in Scandinavia, and at the Mayo Clinic and elsewhere in America. Movements and exercises are more generally and skilfully used than heretofore, and correct posture and postural exercises are powerfully advocated in America. It is evident that the right combination of physical methods is more and more sought after, as well as the proper regulation of rest and movement. In ankylosing spondylitis, for example, the active movement cure in Germany may be compared with the practice of rest in Great Britain, the United States and France.

The great part played by the state and the insurance societies at many of the continental spas, some of them provided with magnificent special hospitals for rheumatic diseases, should be especially noted. Dr. Tegner aptly remarks on the enlightened policy followed at some of these centres. In these great establishments it has proved itself in practice benevolent and helpful to the patients as well as very serviceable to science.

NOMENCLATURE

Many physicians in the new world and the old have now specialised in the research and treatment of rheumatic disease with a new energy; and large general hospitals have provided rheumatism and physical treatment departments. But one serious obstacle stands in the way of their scientific work, and especially in the comparison of results obtained in different countries. All serious students of rheumatism know to their cost that the nomenclature of rheumatism is chaotic, and also that the records of clinical conditions and results of the treatment of rheumatic patients are, as a rule, meagre and unreliable. In this way a great mass of material is wasted to science. It is reassuring to find that among the recommendations that are made for the better organisation of rheumatic centres in Great Britain great emphasis is laid upon the outstanding need for "full records on an agreed nomenclature."

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

JAMES MACKENZIE INSTITUTE

IN the annual report of the James Mackenzie Institute for Clinical Research, Professor Waterston, the chairman, states that although the activities of the institute have been curtailed somewhat since the outbreak of war because many of the staff are engaged in national service, it has been possible to carry on much of the work. So the valuable information collected since the establishment of the institute in 1919 will not be wasted. The work of the institute includes the investigation of symptoms and of minor maladies which interfere with efficiency or comfort with the object of determining the mechanism of their production and their bearing upon the future health of the individual. St. Andrews was selected originally as a suitable place for this work to be done since its size permits of knowledge of the circumstances of each patient; and, since many of the inhabitants are non-migratory, individuals can be observed over a period of many years and long range records kept. The continuous observation of children from birth is a vital feature of the work. Figures based on records of children observed from birth for at least five years reveals a definite decrease of morbidity in the children who were breast-fed and an improved nutrition in the 2–5 year age-period among the same group. The influence of bad housing was not so severely felt by breast-fed as by artificially fed children. Bad housing was found to increase the incidence of respiratory disorders and of measles. It resulted in impaired nutrition in this age-group and also predisposed to poorly nourished and marasmic babies. The Medical Research Council have lent the institute an experienced statistician to give temporary assistance with a view to publishing further results. In collaboration with the university pathological department at Dundee, plans are being made to establish a blood bank at St. Andrews Cottage Hospital, the supply of blood for which will be taken at the institute from suitable donors.

FRANCE

(FROM OUR OWN CORRESPONDENT)

THE REDISTRIBUTION OF DOCTORS

THE grotesque game of musical chairs goes on. Round and round we go to the tune of the national anthem, and on the whole we take our bumps in good part. To understand the rules of the game it is necessary to remember only one cardinal point: every man Jack of us—and Jill too for that matter—has been put at the service of the state, however doddering our age. The Minister of Public Health is the master of the ceremonies, and it is he who tells one to remain where he is and another to go packing. Under him are the departmental prefects. In certain departments the local medical societies have made a working arrangement with the prefects with a view to establishing a more or less self-governing rule among the doctors themselves. The president of the local medical society then becomes a medical registrar and an administrative dictator rolled into one, fitting square pegs into square holes with the minimum of fuss and bullying. But hardships are inevitable. There is the case of the elderly and none too robust general practitioner whose practice in the mountains began to seem overwhelming. Why, he asked himself, should he not

try to find a more comfy chair next time the music stopped? What about some comfortable practice in a place where one or more of the doctors have been called up? What more simple than to slide down the mountains into the plains? But this seemingly happy little plan came to naught with a stern injunction from on high to the old man to remain where he was.

In 1914 the rush of casualties filling the French hospitals in the first few weeks of the war found the Army Medical Service inadequately supplied with doctors. Criticism was lively and was still ringing in the ears of the chiefs of the service in 1939. Accordingly, the provision made for dealing with casualties in the present war was on a gigantic scale, doctors being combed out wholesale from their civilian occupations for the expected massive casualties. When they failed to materialise a chorus of protests again went up, this time because so many thousand doctors were supposed to be twiddling their thumbs in the army while the civilian population was neglected. But the critics cannot have it both ways, and though the Army Medical Service may not be handling war casualties by the thousand at the moment, it is doing invaluable service in sanitation and the training of subordinates.

SCOTCHING THE BOGUS DOCTOR

The last war yielded a small but active crop of bogus doctors. It was so simple. The army orderly with much experience of first-aid and more than a nodding acquaintance with surgery found himself demobilised and his talents wasted. Why not put them at the service of suffering humanity? Recent prosecutions have shown what a place such self-created healers can make for themselves in the community, always provided that it is not too inquisitive about their qualifications. To prevent a recurrence of this process, French doctors are urged to register their medical qualifications with the local authorities on every change of address. As recently as 1935, measures were adopted for the establishment of a central register of all doctors with French medical degrees, but it is as well for the prefecture of a department to have its own local register. Such a local register, kept up to date, is also most helpful in effecting as fair a distribution as possible of medical talent.

UNITED STATES OF AMERICA

(FROM OUR OWN CORRESPONDENT)

FREE CHOICE OF DOCTORS

NOT long ago a study was published under the auspices of the Committee on Research in Medical Economics [1] of a group of 365 self-supporting families of small means living in New York city. The inquiry was directed to discovering to what extent free choice of physician is exercised by this group and how intelligently the choice is made. It was found that two-thirds of the families had no family physician and that the remaining third only called on their physicians for acute or special needs. Mr. Michael M. Davis, in an address before the annual meeting of Group Health Association in Washington on Oct. 31, said that similar conclusions had been reached from a similar study in a mid-western city of 250,000 population. "Free choice of doctor," he said, "brings confusions as well as advantages." Mr. Davis pointed out that no real personal relationship between patient and physician can exist in many cases under these conditions and asks how the average unaided individual in a large city is to obtain reliable information about the training, skill and special knowledge of doctors or about the fees that they are likely to charge.

1. Swackhamer, Gladys V. Choice and Change of Doctors, study of the consumer of medical services. Committee on Research in Medical Economics, 9 Rockefeller Plaza, New York. 1939. Pp. 48.

DELTA OMEGA

Delta Omega, the honorary fraternity in public health, celebrated its fifteenth birthday on Oct. 10, at which time it had 828 members. Its objects are "to encourage research and scholarship among persons undertaking graduate study in the sciences of public health and to recognise attainment in the field of public health." Honour societies exist in several professions in this country: in pure science, in medicine, in law, in theology and in others. Dr. E. E. Hume at Johns Hopkins proposed in 1923 that a similar honour society should be formed for graduates in public health. The idea was immediately approved by Dr. William H. Welch, at that time dean of the school of public health of Johns Hopkins University. The first chapter was formed in that university and subsequently chapters originated in Harvard, Massachusetts Institute of Technology, Yale, Michigan and California. The society has been responsible for the republication of two public-health classics—Budd's book on typhoid fever in 1931, and Dr. Snow's account of the cholera epidemic of the Broad Street Pump—and it is now considering the publication of a third, Panum's "Observations on the Epidemic of Measles in the Faroe Islands."

PSYCHOLOGY OF PEACE AND WAR

Readers of your leading article of Oct. 21 will also be interested in a yearbook to be published in 1940 by the Society for the Psychological Study of Social Issues, entitled "The Psychology of Peace and War." This society is an outgrowth of the economic depression. In 1934 psychologists in various academic centres began to seek a solution for the problem of wasted professional talent which was resulting from the depression. The movement grew into a plan for a learned society which would study psychologically the major difficulties facing all Americans. The society was launched officially in September, 1936, at Dartmouth College during the annual convention of the American Psychological Association. There are now some 400 members, most of them teachers of psychology in colleges and universities of the United States and Canada. The society carries on various educational projects besides its yearbook series and publishes a quarterly bulletin. The secretary is Dr. I. Krechevsky, Box 249, Station G, New York, N.Y.

CONVALESCENCE

A conference was held on Nov. 9 and 10 at the New York Academy of Medicine under the chairmanship of Dr. George Baehr on the subject of convalescent care. It seems that the metropolitan district of New York city possesses nearly half of all the homes for convalescent care in the United States. Much needless hospitalisation results from failure to restore patients fully to health after illness. With more convalescent care of the right kind it is likely that less hospital care will be needed—for example, there will be fewer "hospital repeaters." Many convalescent homes are "choosy," and patients just out of the hospital are sometimes obliged to "trot around" to various admission offices and be examined medically and "welfarely" at precisely the time they most need convalescent care. Convalescent day camp care, as recently demonstrated by the New York city department of hospitals, can provide the needed care in

certain types of cases much more cheaply than can homes. The conference proposed: (1) Reorganisation of convalescent homes to make available expert supervision not only in medicine but in nutrition, physiotherapy, psychotherapy and medical social service. (2) Coördination of hospital and convalescent care facilities so that the patient will be treated as the same individual from the time he becomes sick to the time he regains normal health. (3) Advancement of the visiting housekeeper to the status of professional social worker having special intensive training. (4) Extension of the coverage of workmen's compensation acts and of voluntary hospital-insurance contracts to include provision for convalescent care.

MEDICINE AND THE LAW

Workmen's Compensation and the Forces of Nature

IN Dover Navigation Co. *v.* Craig, noted in these columns on Dec. 30, the House of Lords awarded compensation for a workman's death notwithstanding that it was due to forces of nature and that the risk was one which was equally shared by everyone else in the locality. Craig was a sailor in a ship visiting a mosquito-infested river in West Africa; his death was due to yellow fever and for malaria caused by the bite of a mosquito. Lord Maugham made it clear that the fact that death or injury arose from the forces of nature did not prove that the accident was not one "arising out of the employment." He referred to Brooker *v.* Borthwick, where the accident was due to buildings falling down in an earthquake. It was an irrelevant circumstance, he said, that the particular risk was one to which all other persons in the same area were exposed. Lord Atkin, in a judgment to like effect, mentioned the frost-bite case of Karemaker *v.* Owners of the *Corsican*, and said that the decision there was wrong; the court should have considered not only whether residents in the particular area were usually exposed to the risk of frost-bite but whether the seaman was exposed to that risk because of his employment only.

The Craig judgments will presumably have their effect on other cases too. Last year a lorry-driver became affected by sunstroke in the hot weather at the beginning of June. He was partly employed in agriculture and became ill from sunstroke after agricultural work in the sun; his death, which occurred a few days later, was due to tuberculous meningitis. The county-court judge at Cambridge made no award. He held that the evidence did not establish that the workman's employment involved any greater exposure to the forces of nature than what would have fallen to the lot of any other person in the district. Workmen have, of course, recovered compensation in sunstroke cases. In Morgan *v.* Owners of *Zenaida* a seaman's application succeeded where his work had involved his painting the ship's side in the tropics and the reflection of heat from the vessel's side had contributed an increased risk. But in Warner *v.* Couchman (a frost-bite injury to a man in charge of a baker's cart), the court was still preoccupied with the question whether disability due to the severity of the weather was not a risk which all persons in the locality, whether similarly employed or not, were obliged to run. One recalls too the lightning cases, like Andrew *v.* Failsworth Industrial Society, where the fact that a bricklayer was working high up on a scaffold was deemed to justify an award because the workman was more exposed to lightning at that height than were other people on the ground or in shelter in the locality during the same storm. Must these decisions now be modified?

Effect of Workmen's Compensation Payments

In another case before the Supreme Court last month (Way *v.* Penrikyber Colliery) a man died from obscure causes. He was an ostler at the colliery and, when down the pit, was found in the stables with a lump in the groin and had to be helped out. There was no direct evidence of a blow, but there was medical evidence that a violent blow would have been necessary to produce the lump and that subsequently there were evidences of sarcoma. Way gave notice of his injury and was paid compensation at 30*s.* a week while absent from his work. He returned to duty, was taken ill again and subsequently died. The Aberdare county court judge awarded £283 compensation on the grounds that the man had suffered injury in the groin by accident on the day when he had to be removed from the pit, that this was suffered in the course of his employment, that it aggravated and accelerated—if it did not cause—the growth of the sarcoma which brought about the death, and that the injury accelerated death. By a majority judgment in the Supreme Court it was held that the company had made the payments prima facie on the basis that Way had met with an accident and that there was some evidence of it. The company could have called evidence to say that the money was paid out of charity or without prejudice, without investigation of the facts and without any admission that the accident was within the statute. The company had not done so. Consequently the county court judge had before him some prima facie evidence (not rebutted by any other explanation) on which he was entitled to come to the conclusion he did and to make the award. Lord Justice Slesser, in a minority judgment, disagreed.

The Lancet 100 Years Ago

Jan. 11, 1840, *p.* 586.

From a leading article.

The last number of THE LANCET contained a letter from Dr. George Gregory, Physician to the Small-pox Hospital, announcing that henceforward practitioners would be furnished from that institution, through the medium of the Penny-Post, with an abundant supply of vaccine matter. The inestimable advantages of vaccination are thus brought within the reach of every individual in the United Kingdom, and we cannot but feel grateful to Dr. Gregory for having in so prompt a manner expressed his intention of rendering the enactments of the new postage Act subservient to the cause of humanity. . . . A very large proportion of our population remain unprotected from the ravages of small-pox, and fearfully do we pay the forfeit of this wilful indifference. During the space of six months not less than *five thousand eight hundred and eleven* of our fellow subjects were cut off at home by this loathsome malady, and the numbers attacked in the United Kingdom during the year probably fell not short of *sixty thousand*. This is a melancholy fact. The antidote is prepared for us, but we recklessly dash the cup from our lips, and drink in its stead a bitter, a deadly poison. Let us, therefore, entreat our medical brethren to join fervently and actively in the work of humanity, and to carry out the benevolent intentions of Dr. Gregory, to their fullest extent. A few lines addressed to Dr. Gregory will, we feel confident, receive a speedy answer; and, for the insignificant sum of two pence, an ample supply of vaccine matter will be conveyed to the most distant part of the United Kingdom.

IN ENGLAND NOW

A running commentary from our Peripatetic Correspondents

IN this western peninsula there is a widespread belief that dry, cold and sunny weather is healthy. Actually I am busier in winter than in summer and most general practitioners, I fancy, would say that their work reaches its peak during the first three months of the year, diminishes unsteadily throughout the spring and summer, and slumps (if it slumps at all) in the autumn. The autumn, then, is the healthiest of the seasons; and autumn is not conspicuous for its "healthy" weather. With the coming of the keen east winds the bark of the bronchitic begins to be heard in the land and continues without intermission throughout the winter months. Woe betide the chesty old man who takes the air in "healthy" weather. If go out he must, let him rather choose for his constitutionals those despised, muggy and notoriously "unhealthy" days; on all others let him stay indoors till the time of æstivation is at hand. But does not "healthy" weather bring about a decrease in the number of acute respiratory infections? In these parts, during the recent cold spell, the common cold has been living up to its name and I doubt whether influenza is any more a respecter of weather than of persons. And what of those countries which in winter are more or less permanently in the grip of "healthy" weather? Who, in happier times, among winter-sports fans has not experienced the catarrhal pharyngitis of Switzerland? Disregarding the opinions of Soviet troops, which may not for the moment be unprejudiced, is Finland for example a peculiarly healthy place? I am reluctantly forced to the conclusion that moderation in weather, as in all things, suits us best and that the alleged "healthiness" of cold weather is an illusion begotten of the spurious sense of vigour and well-being that it induces —coupled too often with smug satisfaction at having had the strength of mind to leave one's bed.

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My friend H. is never so happy as when he is helping lame dogs over stiles. There is an old German professor, a pacifist and refugee from his country's concentration camps, who lives all alone in a tiny room not far away. H. had invited him to spend Christmas Day with his family; but the professor somehow got mixed up in his dates, knew that he was to go to them on the Monday, but woke up on the Sunday (Christmas Eve) thinking that it was Christmas Day. He spent a sad and lonely day in his room, with his memories of happy Christmases among his own folk. He was still cast down when he made his way to my friend's house on the real Christmas Day. They made him one of the family, and in the late afternoon the Christmas tree was lit, the family gathered round it and sang a carol, and then the presents were distributed and there was one for the old man. "Sing 'Stille Nacht, heilige Nacht' for us, Herr Professor," said my friend; but he could not, the song would not come—only a few tears which rolled down his cheeks. The next evening my friend was called to the telephone. It was the professor, speaking from a call-box. "I want to tell you that the miracle has happened," he said; "this morning I woke up with the carol in my heart, and I have been singing 'Stille Nacht, heilige Nacht' quietly to myself, all day."

On Christmas Eve we went over to some friends, and met there a German girl of about 23, who is married to an Englishman. Her father had been beaten up by the Nazis, their home wrecked and the furniture and pictures thrown out systematically into the streets. The family had Jewish blood somewhere in the grandparents' generation. She had passed beyond bitterness to an almost uncanny detachment. She told us of her schooldays, of the teaching of the German folk-gods instead of the Bible, of the new Nazified history, and of strange significant things such as the fact that she and the girl sitting next to her in class did not speak to each other for three years because they differed in politics. "I do not know what can be done about Germany, even if the Nazi regime is overthrown," she said; "already two generations of youth are poisoned—my generation and the one younger. And once the Nazi regime goes, the younger generations will find themselves without any anchorage; they have thrown over Christianity, and they have not even the foundation of the home and family to build on, for they have thrown that away also." If she is right, then a lot of the glib talk about war aims is merely touching the surface of the problem both of Germany and of Europe. For it goes deep into the dark places of the human mind and spirit. Perhaps the peace, when it comes, will depend not so much on the politicians as on whether medical knowledge and tradition can be brought to bear in establishing the right treatment for human beings who are beside themselves with despair and disillusion.

• • •

I think it is Stephen McKenna who draws a graphic picture of a dance in London just before the outbreak of war in 1914. He shows the young people light-hearted and unworried, their parents anxious and distressed. Many of us reading this story twenty years ago wondered why parents make such a fuss; now we know. It is the middle-aged and elderly who are finding this war so deeply distressing, while the young people have the same happy disregard of danger and difficulty. Many hard things have been said about this generation as about most generations of young people, but they are showing up uncommonly well. Even the "lovelies" with their pink fingernails and red lips are doing a job of work and doing it well.

Yesterday I visited a maternity hospital in Woolwich—twenty miles through dreary London streets: miles of houses that made one realise the immensity of the problem facing those who are responsible for the protection of London. The place is, of course, an anachronism; never has any nation given such hostages to fortune or been so silly as to put so many eggs into one basket. It looked a godsend to an airminded enemy. If an attack had come, there would have been little criticism of the elaborateness of the Ministry of Health's hospital organisation. The scheme on the whole was greatly conceived and greatly carried out. Let any man who doubts it make a journey right across London and try to imagine what would happen to all those thousands of people in their little homes so closely crowded together if it was attacked with determination from the air. Of course there ought not to be any of these depressing areas such as you see in Clerkenwell, Deptford, Rotherhithe, round the Elephant and Castle and so on, and before we can say that we have really won this war we have got to deal with our overcrowded cities, among other national blots. Winning

the war does not mean just conquering the enemy; we did that before. It means winning a place in the sun for everybody. In planning reconstruction after the war we shall have to face overwhelming difficulties, social and medical, and the medical profession, which has stood aloof from the conduct of affairs far too long, can give invaluable help if only we can agree as to the methods to be adopted.

There are going to be some tricky knots to untie. There is the tangle of the National Health Insurance Act, which is not national and does not insure health. As it stands, national health insurance covers trivial ailments only. It makes no provision for serious illness, X ray or bacteriological examinations, major operations or nursing. Why should a man who has been paying-in to his society for years have to depend on charity for a major operation? If the voluntary hospital is abolished will he be any better off? for in the municipal hospital he may find that he has to pay more than he can afford. Then, look at the results we get from our tuberculosis service. A young workman develops T.B.; he goes to a sanatorium, gets better, goes home, and provided he can lead a quiet restricted life, may live for years—but in most cases he cannot lead a quiet restricted life. His job is gone and all he has to live on is his panel money. Does this provide comfort and ease? If he begins to get really better, he is referred to the R.M.O. by his society and told that he is fit for light work. But who is to give him light work? His panel money stops, he goes back to full-time work and in two years he is dead. The doctor's side of national health insurance is all wrong too. The majority of panel doctors have to work so hard that they cannot possibly give adequate attention to their patients.

The hospital at Woolwich I went to see is an outstanding example of what can be achieved. It is a maternity hospital, and now has one of the lowest mortalities in the world. Every woman gets analgesia in labour and is cared for as if she were a personal friend. The hospital is really run by one old lady, who having seen the "vision splendid," never rested until this became reality. Since the war the hospital is doing more and not less work, for it is taking cases from other hospitals. It has been given a big private house some miles away as a convalescent home, so that the patient's stay in hospital is greatly shortened, to make room for others. This is a voluntary hospital, one of those much criticised institutions which our intellectuals would abolish. What could possibly take its place?

* * *

The young merchant officer whom I was examining had been torpedoed, and was ruefully amused about his underpants, which reached almost to his neck. He explained that he had been fitted out on his return to port from the stores of some charitable organisation, and that he had lost everything except the scarf which he was wearing. "Yes," he said, "everything, including a typewriter that I'd just bought." Worse, however, than the loss of the typewriter was the leaving behind of two "forty-quid accordions" which belonged to members of the crew.

They were torpedoed early one morning, their wireless smashed and useless, and inside a quarter of an hour they were in their boats, in freezing weather and heavy seas. Their ship did not sink, however, for though the bow went under the bulkheads held, and the stern stayed tilted above the surface. They rowed about keeping themselves warm, but in the afternoon they decided that rather than freeze they would chance going back to the ship, for they could find a fire in the galley and food to cook. They made their lifeboats fast to the ship and clambered aboard, and almost immediately the small boats were smashed to matchwood against the sides of the ship; so there they were, aboard a crippled ship, which they could not leave, waiting to be seen and rescued. They made themselves a hot meal, and felt better. A foreign vessel came in sight; it could not get near them because of the big seas, but it wirelessed their position and asked for help. It proposed to stand by until help came, but something went wrong, and it drifted out of sight. Their own ship was groaning and creaking, as they kept its stern to the wind. At night they had another good hot meal, and then most of the little company gathered in the stern, below deck, and had a "grand concert." The two forty-quid accordions were brought out, they sang choruses, and everybody did something—singing, reciting or telling a story. Then they took it in turns to keep the watch and to get some sleep. The next day, in the late afternoon, a destroyer came up and stood by till morning. The sea was too heavy for close work, so rafts were floated from the destroyer, and one by one the men jumped into the sea in their lifebelts, struggled to the rafts, and were hauled aboard.

The officer was suffering severely from exposure, and I laid down the length and details of his convalescent leave. "An old chap in our village," he remarked, "was torpedoed four times in the last war, and before I went off this time he bet me that I wouldn't beat his record. He can win his bet, as far as I am concerned—once is quite enough for me. But I shall go back, of course. In these days you've got to be a hero, whether you like it or not."

* * *

After four months of war there is not much change to be seen on the surface of Wales. True, we have the blackout, but by all accounts it is not keeping people indoors. The cinemas are busy and a few weeks ago when a small theatre in Cardiff had star companies from London it was difficult to get seats. The B.M.A. held its annual supper-dance at the close of the year, and the staff of Cardiff Royal Infirmary held a similar celebration with its usual success. There was no sign of depression about the variety entertainment which the medical students again organised for the benefit of the Infirmary, except perhaps in a sketch in which Slavonic characters alternated between the depressive and manic states because they were kept waiting for their tea. In this performance members of the medical school and hospital staffs learned things about themselves which they had probably overlooked, and the students exhibited a surprising talent for revue.

But below the surface things are not what they were. When petrol rationing began there was widespread anxiety throughout the medical profession. This was not to be wondered at, for the new establishment of the divisional petroleum officer was not exactly a brain-trust. It was completely submerged by its task, and the wreckage in the form of lost applications (including car registration books) and misdirected or delayed ration coupons was considerable. But it all came right in the end. A really efficient and sensible group of head officials soon shook their strange cadre into shape and found means of surmounting difficulties, even such as arose from the burning of a doctor's two months' coupons by the grand-baby. In the meantime garage proprietors, with characteristic disregard of the law, managed to keep their starving clients on the road, and the petroleum department was blind to the rash disclosures of these illicit

dealings which some of our colleagues made in their mental distress. The faculty has accommodated itself to the new conditions with cheery goodwill and with its usual clerical inadequacy. What will happen when the stress of winter and spring epidemics is felt remains to be seen.

Wales, of course, has its evacuees. During the past twenty years there has been a big drift of population from the Principality to London and the other big towns of England. It was natural, therefore, that many married daughters and their children should come home of their own accord at the outbreak of war. These constitute something of a burden to the doctors called in to treat them, since there is little assurance that they will be able or willing to pay fees. In addition, about 10,000 unaccompanied children are said to have been officially transferred to Wales, although the number who have remained is probably much smaller. The health resorts of the Principality, especially in the west and north, are admirably suited for the purpose, but here, too, everything has not gone with perfect smoothness. The Welsh, though not puritanical, have moral standards derived from a long tradition of nonconformity. The women of rural Wales do not frequent public houses and they are not blatant in their sexual irregularities. The behaviour of some of the women evacuees from industrial England has therefore been an eye-opener and the churches are worried about moral contamination. In fact, Wales can do with the children, even if they do chase the cows, but it would gladly dispense with some of the parents.

LETTERS TO THE EDITOR

TOWN CHILDREN IN THE COUNTRY

SIR,—The recent dispersal of city children into the country provides unusual opportunities for studying the medical changes which follow environmental alterations. Numerical observations are of particular value if they are controlled by pre-war records. Clinical impressions are often derided, but if they are applied with common sense they can still contribute to medical knowledge.

The most obvious change in the evacuated children is an appearance of increased well-being. This is no doubt due in part to the greater ease of keeping clean in the country, but it will be interesting to see if a coexistent increase in growth is shown in the records of the height and weight of school-children. Perhaps we may hope for enlightenment on this point later from school medical officers. Further numerical results should be available from the Registrar General's returns, and from the records of notifiable diseases. The Minister of Health stated in the House on Nov. 2 that "in the two months of this great migration the nation actually had less epidemic disease than in the two corresponding months of full peace." He quoted, among others, the figures for diphtheria. Shall we find that scattering city children over the countryside reduces the amount of diphtheria among them? Will the country children suffer? One practitioner here had seen no diphtheria for years, but since the war began he has had a considerable number of cases, mostly in the permanent inhabitants. Shall we find an increased incidence of tuberculosis of bovine type as a result of so many city children changing from pasteurised to unsterilised milk?

Our experience in a country hospital converted for the treatment of sick children is as yet too brief for dogmatic statements, and the children have only been in the country during a relatively healthy time of year. From the specialised standpoint of the hospital physician, diarrhœa (especially Sonne dysentery) has taken first place. During the first three months of the war 38 out of 140 admissions were for infective enteritis, and 32 of these came from day nurseries or babies' homes which had been evacuated to the country. Of other serious complaints, the most frequent have been otitis media, pneumonia, rheumatic fever, nephritis and infantile marasmus. Hospitalisation has also been necessary for children doubly infected with dysentery and whooping-cough, for carriers of dysentery bacilli or hæmolytic streptococci who needed treatment away from their billets and schools, and for children who were to have had their tonsils and adenoids removed in London last autumn.

Of minor ailments, enuresis, impetigo, eczema and asthma have given rise to such social and therapeutic difficulties in billets that admission to hospital has often been necessary. One needs to appreciate the weight of responsibility that falls on a foster parent when another person's child develops one of these ailments. This makes it necessary to keep the child in hospital until he is able to resume a completely normal life. Of course, admission to hospital does not imply any inadequacy in the billet, but nevertheless we are often faced with the desire of the parents to take the child home instead of allowing him to return to his billet.

It is our impression that the much vaunted enuresis of evacuated children is often an outcome of psychological disturbances connected with being pitchforked into a new environment, as also are some of the behaviour problems that we have met. We have been struck by the absence of chorea in these trying circumstances.

We are, Sir, yours faithfully,

WILFRID SHELDON,
PHILIP EVANS.

Cuckfield Children's Hospital (E.M.S.), Sussex.

THE SPAS IN WAR-TIME

SIR,—At the present moment the British spas stand in danger of being put out of action. Will you kindly allow us to point out the damage that this will bring about, not only to the spas themselves but to much wider interests?

(1) *The British Spas* are a small but unique group of health resorts which have been developed in the course of years by the local authorities or private owners. They have been equipped for modern hydrological and physical treatment, and are practically the only places that offer such facilities in this country. They have also perhaps unique medical indications—the prevention and alleviation of rheumatic and other forms of chronic illness, the after-treatment of accidents and injuries, and the rehabilitation of disabled men. Great numbers of military cases were treated at the spas in many European countries during and after the last war.

It is quite certain that even the temporary closure of a spa at the present time, involving the dispersal or reduction to a minimum of its trained staff, will seriously endanger its future. During the war it will be deprived of a great opportunity of increased work, when no invalids can leave the country. And after the war, until the knowledge and experience, the skilled service and technique can be reconstructed, large numbers of British invalids, and their money, will go abroad for the spa treatment which they need.

(2) *The British Spa Hospitals*, one of which has just celebrated its second centenary, are of private foundation, designed and equipped for the use of the poor who are affected with rheumatic disease. They have won the right to be regarded as of national importance, both in peace- and war-time, and have always hitherto been used for their special purpose. All these hospitals, so essential also to the scientific work of the spa, have now been emptied and commandeered for casualties. It would have been better to extend and improve their equipment for military cases. A little wise development of these institutions would be of the greatest value when peace returns, for it is well known that their present accommodation is far short of requirements. In the circumstances we hope that the Government will see its way as soon as possible to restore the spa hospitals to the uses for which they were founded. We are informed that permission has now been received for a few beds to be temporarily occupied by rheumatic patients, but that this would entail administrative and economic difficulties. Meanwhile, with a constantly increasing number of applicants, the institutional treatment of the rheumatic diseases has nearly come to a standstill.

(3) *Hotels.*—The necessary accommodation for spa guests is provided: (1) for private patients, in hotels adjacent to or communicating with the baths; (2) in special clinics; (3) in the spa hospital, for patients mostly insured or assisted. The present commandeering of the principal hotels, including some nearest to or communicating with the baths, has made it extremely difficult for invalids with independent means to obtain the necessary treatment.

As regards the bath establishments and their associated hospitals and hotel accommodation, it seems to us that some reconsideration of the present demands is required, so as to permit them to continue their activities for the benefit of all classes of the population, and also to make their special contribution to the restoration of the men who are wounded and invalided in war.

We are, Sir, yours faithfully,

E. FARQUHAR BUZZARD,
President, International Society of Medical Hydrology;

ROBERT HUTCHISON,
President, Royal College of Physicians;

HUMPHRY ROLLESTON,
Late chairman, British Committee on Rheumatism (Royal College of Physicians) 1933–8;

R. FORTESCUE FOX,
Late president, Ligue internationale contre le rhumatisme.

THE CHRISTMAS GIFT

SIR,—If it were possible it would be my wish to ask you to publish a few of the many letters of thanks for Christmas gifts which have been received, so that your readers could judge of the sincerity of the gratitude felt by the beneficiaries of the Royal Medical Benevolent Fund. On their behalf and on my own I desire to express my warmest thanks to you and to your readers who so generously responded to my Christmas appeal.

The total received was £1077, which is within a few pounds of the sum contributed last year. The goodwill shown in fully maintaining our Christmas gifts fund during these difficult days is more than gratifying and encourages me to hope that during this new year the whole profession will not forget how urgently the fund will need its help. I know that in many districts, owing to the cancellation of medical meetings, collections could not be made as in previous years, but my special thanks are due to those officials who of their own accord gave their personal time in collecting from their members. In my appeal letter of December I said "Time was short"; in this letter I can say with all truth "Time was not too short for generous hearts."

I am, Sir, yours faithfully,

THOS. BARLOW,
Wormingford, Essex. President, R.M.B.F.

DETOXICATION OF SULPHONAMIDES

SIR,—In your issue of Dec. 23 Dr. Robert Forgan suggests research to determine the possible value of nicotinic acid as a detoxicating agent. While it is desirable that every available means should be used to reduce the toxicity, which daily becomes more evident, of the sulphonamide and sulphapyridine compounds, it is to be hoped that before long equally effective but less toxic derivatives will be available. The necessity of administering an antidote each time sulphapyridine is used imposes an additional burden on the profession, and non-toxic alternatives would be welcomed. Moreover, in chemotherapy, research seems to show that the prospect of a universal panacea is receding, and since Long and Bliss [1] have found that marked differences exist among strains of pneumococci in their responses to the chemotherapeutic effects of sulphapyridine, the increasing evidence of specificity in action should not be overlooked.

I am, Sir, yours faithfully,

Chelsea, S.W.3. H. CROFT JOHNSTON.

"WITHOUT REFERRING TO THE ETHICAL SIDE"

SIR,—We of the medical profession can always find guidance when Professor Ryle leads and I write in support of his idea of temporary local medical societies being set up at all times and in all places. To one such on the Wady Ghazee the M.O.s of the 179 Brigade group owed much. It was on Sunday afternoons and meant a long ride in the August midday sun; but it was worth it every time. It was held by the Australian and New Zealand units of the Desert Mounted Corps, but they asked us of the neighbouring English divisions to come along. We discussed violently all sorts of things then important to us: dysentery, medical tactics, septic sores, to give or not to give A.T.S. when we got on the fertile plains of Palestine (it had not been needed in the desert of Sinai), lousiness, transport of wounded. There also I learnt for the first time the open-mindedness of the Australian, ready to learn anything from anyone, arguing hard until you had convinced him, but once convinced ready to act on his new knowledge forthwith. Their minds were so different from ours of "the old country." We wanted to teach, and with an air of superiority that did not seem polite to them listened without attention to their experiences. In war everything is so new and so changing that the most experienced D.M.S. may be able to learn from the newly joined lieutenant who in his first fortnight has come up against some medical point unknown in war before.

But while giving general support to Professor Ryle's proposition there is one point on which I would like to write most emphatically from personal experience. The educational approach to the venereal-disease problem, as opposed to the mere provision of preventive packets, and how it may best be organised for different types of unit and different ranks, inevitably requires free discussion in our younger

1. *Ann. intern. Med.* 1939, 13, 232.

modern army. In doing this we of the medical profession must refuse to be forbidden to approach this problem on ethical grounds as happened last time. Instructions were sent out that in each unit a padre and a M.O. should be ordered to give three lectures each to the men on the V.D. problem and report to H.Q. through the C.O. that they had done so. It was added that the M.O. should stick rigidly to the medical problem and not touch upon it as an ethical one. My first lecture was easy; it was upon the anatomy and physiology of sex, a subject upon which the generations that were brought up between the years of 1890 and 1914 were, except for members of our profession, absolutely ignorant. My audience of R.A.M.C. men, consisting mostly of intelligent city clerks, listened with that rapt attention that any audience will give to a subject simply told in which they are intensely interested. My next lecture was upon the pathology and prevention of diseases resulting from the sexual act. The pathology was easy; but when I came to prevention I found myself in deep water. I was not allowed to refer to their better natures, their sense of decency, the traditions in which they had been brought up, or their ideals. An anecdote of the Front Surgery slipped out, it went down; another of a country practice followed, it went down better. I was getting on. A story from Boccaccio pushed itself in; and from that moment the house was in an uproar. The rafters rang and the fellows rocked from side to side with laughter. It was the most successful lecture, in its way, that I have ever given.

When I got back to my quarters things seemed different. I realised that I had acted merely as a medical pimp, teaching these boys how they could behave under the lowest code and get away with it. I realised that I had given way to the success of my stories; I realised that I had let these boys down, and been let down myself by their response. Each one of my stories, by itself, would have been legitimate in the teaching of medicine because it had a "nub," as Abraham Lincoln used to call it. But to the non-medical to whom the application of the nub was not evident they were just dirty. I had come across this before in a field ambulance, to the mess of which four padres were attached. I could not understand why they were so disgusted with our harmless medical jokes. The orderlies' laughter taught me what the padres had thought. I felt that I had let down our profession and should never again have any hold on the men. I therefore decided to disobey orders and in my last lecture to try to explain to the men why in the face of desires that we know to be physiological, and that in themselves we do not believe to be wrong, we should be continent. It was, I think, the hardest thing I ever had to do; but my audience were silent, and so I believe I succeeded. Today it will be no easier. The knowledge of sexual physiology among the young is high; their freedom of talk between the sexes makes old people feel uncomfortable; their code is different, though I do not think it is lower than that of a former generation. Above all there is the enormous importance that certain schools of physiology have laid upon sex.

All these things make Professor Ryle's advice the more important that they should be a subject of discussion in our medical societies. The medical profession is as well suited as any to regard them from an ethical standpoint. We have to deal with the patient who has suffered from his actions; when we have neither to judge nor to condone, when we must be compassionate without seeming to approve. Whether the order I have quoted came from the local office of the command or from some higher authority I do not know; nor do I know whether it emanated from the brain of the local senior medical officer, or was imposed upon him by the A.G.'s branch with or without the influence of the Chaplain-General's department. What I do know is that if any such order is again given it must be resisted by every member of the profession.

I am, Sir, yours faithfully,

Guy's. T. B. LAYTON.

PS.—I have discovered a copy of the report I wrote at the time. I heard nothing more about it.

PEMPHIGUS NEONATORUM

SIR,—The case of pemphigus neonatorum treated with sulphapyridine recorded by Drs. Troup and White in THE LANCET of Dec. 30 will be of interest to all who are called on to treat such cases, and it may not be out of place to state briefly my own experience of this disease. The article by Carter and Osborn [1] seemed to show conclusively that the invading organism is a staphylococcus, not a streptococcus as was previously believed. Andrews [2] agrees, and considers that the streptococcus is the invading organism in Ritter's disease or dermatitis exfoliativa. The latter is to be differentiated from pemphigus neonatorum, which is very localised, at least in its early stages. I would like to pay tribute to the method of treatment advocated by Carter and Osborn. Some 30 cases of pemphigus neonatorum, of varying degree of severity, are admitted annually to Belmont Skin Hospitals, where they are at once isolated in cubicles. Since the adoption of Osborn's purely local method of sterilisation by silver nitrate solution, anxiety has arisen only with those cases where denudation of skin has been great. For the past year a quarter of a tablet of M. & B. 693 has also been given twice a day to all cases, and there have been no deaths. It is curious that the case recorded by Troup and White responded to M. & B. 693, which in my experience is not very successful in streptococcal infections of the skin; possibly the invading organism was a staphylococcus, for had it been a streptococcus the sulphonamides would appear to have been the more rational therapy. Certainly the so-called pemphigus of older children, of undoubted streptococcal origin, has responded better in my hands to the sulphonamides than to sulphapyridine.

I am, Sir, yours faithfully,

Liverpool. F. GLYN-HUGHES.

MEDICAL HYDROLOGY

SIR,—At a meeting of the Committee for the Study of Medical Hydrology in Great Britain on Dec. 20, it was decided to carry on its work of providing lectures to medical societies on clinical aspects of hydrological treatment with redoubled vigour in view of the great value of such treatment in both rehabilitation and nervous cases, as was demonstrated in and after the last war. The blackout makes attendance at evening meetings difficult, and it was suggested that, where possible, meetings and lectures should be held in the late spring and summer to take the place of some of those that would ordinarily be held in the winter.

I am, Sir, yours faithfully,

G. D. KERSLEY,

The Circus, Bath. Hon. Secretary.

1. Carter, H., and Osborn, H. A., *Brit. med. J.* 1936, **1**, 465.
2. Andrews, A. C., Diseases of the Skin, Philadelphia, 1938.

BASAL METABOLISM AND THE CO_2 OUTPUT

SIR,—Within recent years the late Dr. E. P. Poulton has popularised the old view of measuring the basal metabolism by the carbon-dioxide output. Dr. Beryl Harding, in her paper in your last issue (p. 17), based on Dr. Poulton's work, states that this method "has considerable advantages over the closed-circuit method or that involving the use of the Douglas bag"—i.e., over the measurement of oxygen absorption. She raises several points (and others) that have arisen in my discussions with the late Dr. Poulton on this subject, and I am taking this opportunity of replying to them.

Dr. Harding states the importance of 5 minute readings and points out that by this means one can detect periodic variations in the basal metabolism, otherwise missed if a 10–15 minute reading is employed. It is true that periodic variations are more likely to be missed in an open-circuit method, but they are also made most apparent in the graphic closed-circuit method where not only can variations be detected over five minutes but from minute to minute, even breath to breath. This all goes to show how sensitive the closed-circuit method is. After dummy readings and attendance on two days, a variability in the readings over so short a period as four to five minutes is not the rule.

Irregular ventilation is mentioned by Dr. Harding as an objection to the closed-circuit method. As stated above, however, herein lies the value of the method. Graphically this is at once obvious and the test is known to be unsatisfactory. The phenomenon of *auspumpung* is a fallacy which all workers in metabolism must keep constantly in mind, but particularly those employing CO_2 as a measure of the heat production, as this throws all the error on the CO_2 and there is a danger that the subject may be overventilating without this being obvious to the observer. Edsall (*Boston med. surg. J.* 1912, **167**, 634) by forced breathing caused an excess elimination of CO_2 as great as 4·5 to 8·1 litres with only a negligible increase in the oxygen utilisation.

Regarding the reliability of readings using the CO_2 method, Dr. Harding quotes observations on three patients in table 5. Miss P. had a variation in her B.M.R. of +12 to −17 in fifteen minutes. She ascribed this to "extreme nervousness." This explanation does not seem likely as nervousness would tend to give a high and not a low reading. Subsequent B.M.R.s were +13, +20, +17. The third patient, Miss S., gave readings of +15, +30, +10, +30. These variations were ascribed to "extreme heat and stuffiness of the day," subsequent readings being +5 to +10. Uncomfortable warmth with sweating, however, has but a slight effect on the metabolism. Benedict and Dubois (*Amer. J. Physiol.* 1925, **73**, 429) found that a maximum increase of 7 per cent. took place with people in an oil-cloth bag, through which air at 94° C. passed. This temperature made the feet and legs uncomfortably hot. It seems more reasonable to ascribe the variations in the B.M.R. of Dr. Harding's patients to fluctuations in the CO_2 output, common enough when any face appliance, mask or mouthpiece is employed in its collection.

In discussing the closed-circuit method Dr. Harding states that Dr. Lucy Wills found higher readings by this method than with the Douglas bag in thyrotoxicosis. (I have always found them to agree very well.) Dr. Harding writes, "This may be due possibly to the stimulating effect of the high oxygen content of the inspired air in these patients." This is not in accord with the generally accepted physiological views. Lavoisier and Seguin in 1789, then Regnault and Reiset, and more recently Benedict and Higgins showed that the breathing of high concentrations of oxygen does not stimulate metabolism.

Summarising, it may be said that whereas it is not by any means established that CO_2 measurement gives a more accurate index than the oxygen consumption, it is generally accepted that the collection of CO_2 for this purpose is not best performed by the method Dr. Poulton has described. As Dubois has said: "In respiration chamber experiments there is no *auspumpung* and the figures for CO_2 are more uniform than those for oxygen. This has attracted the attention of a few experimenters who have recommended CO_2 as a more accurate measurement than oxygen, but they have had no justification in transferring the result to any type of apparatus that does not employ long periods."—I am, Sir, yours faithfully,

J. DOUGLAS ROBERTSON.
Courtauld Institute of Biochemistry, Middlesex Hospital, London.

EMPTIED SANATORIUMS

SIR,—In your leading article of Nov. 11, 1939, you referred to the committee set up at the invitation of the Minister of Health by the National Association for the Prevention of Tuberculosis, together with the Joint Tuberculosis Council and the Tuberculosis Association. Delegates from the Society of Medical Officers of Health have also been appointed, together with the medical officer of health for the London County Council and a representative of the Ministry of Health. This committee has now been formed under the title of "Standing Advisory Committee on Tuberculosis," and has already met. Its personnel consists of the following: Sir Perceival Horton-Smith Hartley, Dr. J. H. Harley Williams, Dr. S. Vere Pearson, Dr. J. B. McDougall, Dr. G. T. Hebert, Dr. N. Lloyd Rusby, Dr. James Ferguson, Dr. Ernest Ward, Dr. W. Allen Daley and Dr. Norman F. Smith.

I am, Sir, yours faithfully,

HARLEY WILLIAMS,
Secretary-General.
National Association for the Prevention of Tuberculosis, Tavistock Square, W.C.1.

PRICE OF COD-LIVER OIL

SIR,—I should like to comment, from the point of view of a manufacturer of agricultural feeding stuffs, on your timely suggestion for a Ministry of Health inquiry into the price of cod-liver oil (*Lancet*, 1939, **2**, 1394).

Something very strange has been happening in the cod-liver oil industry. At the outbreak of war it was stated that stocks were low, and, owing to the requisitioning of trawlers, replacements so small that it was necessary forthwith to increase the bulk wholesale price of veterinary cod-liver oil from about 3*s.* to about 7*s.* a gallon. It was actually emphasised that all deliveries were being made from pre-war stocks, and it was thus clear that the cod-liver oil manufacturers were seeking to make large profits on their pre-war stocks in order to build up reserves against the smaller turnover which war-time conditions would impose. Whatever one may think of this principle, which so far as I am aware has not been recognised in any other industry, that is the explanation currently given. I have even heard it suggested that the shortage of stocks on the outbreak of war was directly due to the shipment of some thousands of tons of cod-liver oil from British refineries to Germany within the six months immediately preceding the war. I have no means of verifying this suggestion, but if it is true British agriculturists would appear to be

indirectly subsidising the export to Germany of large stocks of a material vital to them.

And now comes the really extraordinary part of the proceedings. On the plea that cod-liver oil stocks were low, the British cod-liver oil industry—or the greater part of it—has apparently persuaded the authorities to permit them to dilute their cod-liver oil with whale oil "in order to make the cod-liver oil go further." I say "persuaded" because in view of the control of oils it is obvious that the thousands of tons of whale oil required for this dilution could not be obtained without official approval. Since the sole quality of cod-liver oil for which manufacturers such as ourselves incorporate it in our products is its vitamin-D activity, it is a little remarkable that we should be expected to approve arrangements which have the effect, not only of not providing us with any more vitamin D, but actually of making as certain as possible that we do not know just how much vitamin D we are getting in the oil we receive. Speaking for ourselves, and I have little doubt for other manufacturers, if we wished to incorporate whale oil in our rations we would rather buy it ourselves at 2*s.* a gallon than pay the British cod-liver oil industry 7*s.* a gallon for it under the guise of "blended cod-liver oil."

Actually we have neither the desire nor the intention to use whale oil in our products at all, and we have made other arrangements. The general body of agriculturists, not all of whom possess the specialised knowledge available to manufacturers, are not in so fortunate a position, and whether they like it or not apparently cannot readily procure any genuine cod-liver oil unless they are able to import it from Norway. This, I need hardly say, it is virtually impossible for the ordinary person to do. The only effect of this arrangement appears to be that, in order to achieve the same antirachitic activity in food, the amount of "cod-liver oil" which will have to be incorporated must be increased in proportion to the dilution. What economy of cod-liver oil this produces I, for one, cannot fathom.

We are now assured that, thanks to these arrangements, it is hoped to fulfil all normal requirements for "cod-liver oil." If, as this announcement appears to indicate, the output of this blended product is back to normal, it is difficult to understand why the enhanced price should still be maintained. Consumers are being asked to pay more than twice the price for an oil of possibly half the efficiency. They are thus, in effect, paying four times the pre-war price for their units of vitamin D. The suggestion has been made that the dilution is equivalent to a reduction from 100 D per gramme to 85 D per gramme, but, in view of the difficulty which the principal producers have in verifying differences in vitamin D activity even between cod-liver oil and products several hundred times as rich (see Mr. MacLennan's letter, *Brit. med. J.* 1939, **2**, 1302), it is asking rather a lot to expect the industry as a whole to accept their statement that the reduction is equivalent to only 15 per cent. What one would like to know is precisely the proportion of whale oil with which the cod-liver oil is diluted. It is an interesting point that, notwithstanding the shortage of genuine cod-liver oil which has resulted in such extraordinary measures being taken, the duty of 1*s.* 4*d.* per gallon on imported cod-liver oil is to be retained, apparently to protect the British industry whose chief profits are going to be derived from purchasing whale oil at 2*s.* and selling it at 7*s.*

I am, Sir, yours faithfully,

H. C. H. GRAVES, *Chairman*,
Agricultural Food Products Limited.

London, W.6.

SIR,—We have read with interest your note on the price of cod-liver oil in your issue of Dec. 30. So far as British cod-liver oil is concerned, the price increase is almost entirely due to the shortage of trawlers and the great risks attached to fishing in these days. Only a few of our large fleet of trawlers were left to carry on at the outbreak of war; the rest were taken for service with the Royal Navy.

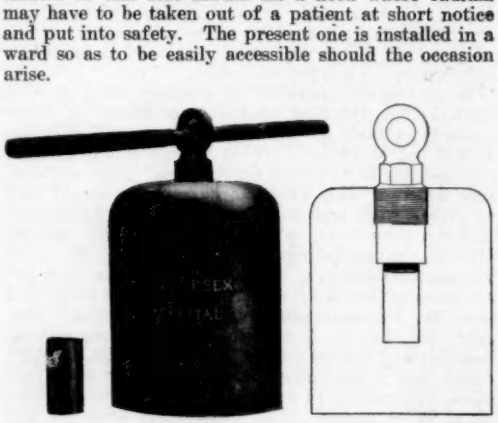
I am, Sir, yours faithfully,

HUGH D. C. MACKAY,
British Cod Liver Oil Producers (Hull) Ltd.

*** We understand that the Ministry of Food has decided to control the production of cod-liver oil, and the Ministry of Agriculture has approved a scheme for the mixing of cod-liver oil of high vitamin potency with other oil of piscatorial origin in a product of definite vitamin standard. In view of the fact that the British cod-liver oil producers have lost the greater part of their fleet of trawlers to the Navy, it is clear that British production will be small for the duration of the war. In the meantime needs must be met by imports from foreign countries, chiefly Norway and Iceland. Powers already exist for preventing dealers from making more than a reasonable profit.—ED. L.

SAFETY RADIUM CONTAINER

SIR,—For the safety of radium in war-time there are two alternatives to a borehole. One is a very massive safe, and the other is a steel container with a sufficiently thick wall to prevent it being broken by high-explosive action. Mr. Greatbatch, of the Research Department, Woolwich, recommends for this purpose a minimum thickness of 3 in. of mild steel, and on the basis of his specification we have constructed a container which is illustrated here. Containers of this sort should fill a need where radium may have to be taken out of a patient at short notice and put into safety. The present one is installed in a ward so as to be easily accessible should the occasion arise.



The line drawing would be a useful one to submit to any working engineer who may be asked to make such a container. It is 9½ in. high and 7½ in. in diameter; the dimensions of the inside brass cylinder are 3½ in. high and 1½ in. in diameter; the overall weight is 120 lb., and it is easily carried by two people using the cross-bar. The container depicted has been made by Mr. Kersey of 2, Great Central Street, N.W.1, at a cost of under £6.

I am, Sir, yours faithfully,

SIDNEY RUSS.

Barnato Joel Laboratories, The Middlesex Hospital, W.1.

PARAPLEGIC BERIBERI

SIR,—In your issue of Dec. 30 Dr. Philip Evans comments upon my case of paraplegic beriberi described in THE LANCET of Dec. 16. It would appear that the descriptive label "famine œdema" has been misleading and I am sorry I did not use instead the term "epidemic dropsy," which, in the light of Dr. Evans's letter, might have been less ambiguous—I understood that the two terms were synonymous. However, my suggestion of a link between my case and "famine œdema" was not in respect of the œdema but referred to the vascular phenomena seen in the legs, the words employed being: "The deep dilated vessels about the ankles and the transient erythema of the legs suggest a link with 'famine œdema,' a disease. . . ." As described in my paper the patient's œdema was slight, affecting only the pre-tibial zones, ankles and dorsa of feet: it was more resistant to pressure than ordinary cardiac or renal œdema, and seemed to conform in all respects with that described as characteristic of beriberi. I did not think that nutritional œdema was present as well as beriberi.

I am afraid the serum albumin was not estimated, but I doubt if any significant change would have been present at the stage when I saw the case—even if one considers that earlier a subnormal figure might have been found. As stated in the case-record the patient had been taking a full mixed diet and eating with excellent appetite for two months before she was referred to me. I am, Sir, yours faithfully,

Harley Street, W.1. J. BRUCE YOUNG.

THE MIND OF HITLER

SIR,—The author of the article A Psychiatrist Looks at Hitler in your issue of Jan. 6 is doubtless justified in seeking in Kraepelin's writings corroboration of his diagnosis of Hitler as an hysteric; and I do not seek to contravene his thesis.

Kraepelin was a great clinical cartographer in the field of psychiatry, and excelled in description of syndromes and in their classification, but much of his work has inevitably been superseded, and your contributor would have done better to follow the guidance of Kretschmer whose concept of the "hypoboulic" will in his monograph on hysteria clarifies the whole subject; but even that does not suffice, for Kretschmer neglects much that is valuable that has come to us through psychoanalytical research. The fact is that Hitler's psychology cannot be comprehended apart from the psychology of the people whom he rules, and in this Jung is our best adviser. As is well known, Jung hypothesises a "collective" or racial unconscious, a doctrine to which Freud has not explicitly subscribed, but one which he impliedly has accepted, as witness his statement that "symbolism, a mode of expression which has never been individually acquired, may claim to be regarded as a racial heritage." Jung would regard Hitler as the focus point of the unconscious of the German people, a symbol for their repressed longings, a vehicle whereby their pent-up aggression and ambition are expressed, a saviour-symbol wherein they seek salvation. Doubtless Hitler is an hysteric, but the important thing is that he is a special kind of hysteric, one who is mediumistic to the unconscious of his people, and who in a trance-like oratorical fervour "can pour back in flood what he receives from his audience in vapour."

Jung it was who shortly after the last war identified amongst Germans certain warlike and archetypal dream symbols which foreshadowed the events that have come about. They sought a god and a saviour and in hysterical projection found one in Hitler. "May not public bodies go mad sometimes like individuals?" asked Bishop Butler one day of his chaplain, for it seemed to him that nothing else could account for history. And thus it is today. Germany suffers from a psychosis whose nature is clearly delineated in the psychology of their Führer.

"It is an essential part of the tragic paradox of modern Germany that it cannot escape the necessity of repudiating its most exquisite poet. A nation which is involved in that compulsion is in a condition of extreme disease." Heine, the poet referred to, had always recoiled with disgust from the "Ancient Teutons," and their prophet Jahn. "In a certain tavern in Göttingen," he wrote, "I had the opportunity of admiring the precision with which my friends, 'the ancient Teutons,' prepared the lists of those who would be proscribed by them as soon as they arrived in power. Anyone who was descended, even seven generations back, from a Frenchman, a Jew or a Slav was to be condemned to exile. Anybody who had ever written anything against Jahn or the absurdities of the old Germans themselves might expect the death penalty carried out, of course with the axe and not with that French invention, the guillotine." These words portray a barbarism, an atavistic reversion such as we see again in Germany today; and a study of Hitler's psychology that does not take account of them cannot be truly explanatory. In the words of your leading article, the real problems lie behind Hitler's individual personality and are concerned with the disease of which he is a prominent and ugly symptom. I am, Sir, yours faithfully,

T. M. DAVIE,
Medical Superintendent,
East Riding Mental Hospital.

Beverley, Yorks.

INFECTIOUS DISEASE

IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 16, 1939

Notifications.—The following cases of infectious disease were notified during the week: Smallpox, 0; scarlet fever, 1183; whooping-cough, 1072; diphtheria, 863; enteric fever, 16; measles, 2248; pneumonia (primary or influenzal), 450; puerperal pyrexia, 152; cerebrospinal fever, 25; poliomyelitis, 4; polio-encephalitis, 1; encephalitis lethargica, 3; dysentery, 33; ophthalmia neonatorum, 78. No case of cholera, plague or typhus fever was notified during the week.

Deaths.—In 126 great towns, including London, there were no deaths from smallpox, enteric fever, measles or whooping-cough, 1 (1) from scarlet fever, 14 (0) from diphtheria, 29 (4) from diarrhœa and enteritis under 2 years, and 25 (4) from influenza. The figures in parentheses are those for London itself.

Fatal cases of diphtheria were scattered over 12 great towns, Birmingham and Leicester each reporting 2 deaths. Birmingham attributed 3 deaths to influenza.

LANGLEY MEMORIAL PRIZE.—This prize of £21 is open to competition among officers of the Colonial Medical Service who are serving, or who have served, in West Africa. It will be awarded for the best paper submitted on a topic falling within tropical medicine or surgery; tropical hygiene and sanitation; or tropical entomology and parasitology. Special consideration will be given to original work. Papers, which may consist of either published or unpublished work, should be delivered to the secretary, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1 not later than Oct. 1.

THE LONDON MEDICAL SCHOOLS

PLANS FOR THE COMING TERM

AT *Bart's* the arrangements for teaching outside London have worked smoothly. The preclinical students are comfortably though expensively housed in Cambridge. The clinical students are divided between the Friern Hospital, New Southgate, and Hill End Hospital, St. Albans. At these hospitals there is a satisfactory supply of both teachers and patients, a museum and pathological laboratory have been provided, and there are ample midwifery cases. All examination requirements can therefore be met. Bart's is so centrally placed as to have come often into the target area in the last war. While the danger of air-raids remains, therefore, it seems wise for the students, preclinical and clinical, to stay out of London.

The policy of *Guy's* has been to carry on as much of the teaching in London as the emergency hospital scheme allows, while keeping the rest of the school together as an independent unit in the Kent sector. The preclinical school is happily housed as a collegiate body at Sherwood Park, between Tunbridge Wells and Pembury, where there are ample laboratory and lecture-room facilities and friendly relations have been established with the local sports clubs. The clinical teaching is done at Guy's, Farnborough (Kent) and Pembury. The changes in the E.M.S. and the reopening of more beds at Guy's will mean that many students will be returning, but there will be no general return till October at the earliest; a succession of students will continue to use the Kent county council hospitals to supplement the teaching at Guy's. The dental school is also housed near Tunbridge Wells and the premises there will be kept on, though the dental hospital at Guy's is now reopening and third- and fourth-year students will be returning.

At the outbreak of war the students of *King's College Hospital* were dispersed into ten of the sector hospitals, where during the next month the ingenuity of both teachers and students was taxed to ensure continuity of teaching and bring the hospitals up to standard. At the largest hospital in the sector students were allocated to four firms, each with 3 surgeons, 1 or more physicians, 3 anæsthetists, 6 medical officers and 500 beds. Daily ward rounds and systematic lectures were arranged at the larger hospitals. A circulating library and a travelling museum were organised, specimens being transferred between hospitals every fortnight. In the new term teaching has been reorganised. Since students are no longer part of the E.M.S. they need not be scattered in outlying hospitals, and teaching will now be concentrated in three hospitals. For the first six months of their clinical period students will be attached to King's College Hospital. After this they will go to one of the advanced base hospitals. The second-year students will go to another advanced base hospital, while the third-year will return to King's, where they have the advantage of seeing outpatients. The dental school came back to King's from the sector in December, in readiness for the opening of the enlarged dental department in January.

The preclinical school of the *Middlesex Hospital* has returned to London from Bristol. Most of the clinical students have also returned, but a few are remaining in those sector hospitals where there is plenty of clinical material.

The plan at *St. George's* is to keep students for their first year of clinical work in London, to do a preliminary course in pathology and the first appointments as dressers and clerks. Arrangements are being made to provide clinical instruction at a large municipal hospital in the sector for the second year, towards the end of which students will return to St. George's for outpatient work, clerking in the special departments and final revision before their qualifying examination. This scheme promises to be highly satisfactory and should assure students even more clinical experience than they got before the war.

The first-year students of *St. Mary's* are at Berkhamsted School, where they are being taught by their own teachers. This arrangement will continue for the coming term at any rate. The anatomy and physiology students are all back at St. Mary's. About 100 of the 230 clinical students have not left London, for St. Mary's is fortunate in being able to use the clinical material of Paddington, Hammersmith and St. Charles' Hospitals (L.C.C.) as well as of St. Mary's itself. Those who are doing special courses—pathology and so on—are being brought back to London, but about 70 students are to remain in the sector at Park Prewett, Harefield and Hillingdon.

At *St. Thomas's* the laboratories for chemistry, physics and biology were closed at the outbreak of war, as they were at all London schools, but teaching was resumed in October for a limited number of premedical students and will now be continued in the medical school. The preclinical students doing anatomy and physiology have been accommodated since October at Oxford, with most of their own teachers. A preclinical class is now starting work at St. Thomas's and all the preclinical students will be back in London by the end of February. Facilities for clinical teaching were provided by the Surrey county council at their hospital at Kingston, and teaching for the first-year clinical students, including lectures at the School of Art at Kingston and laboratory work, began there in October. At the same time the special departments resumed work at St. Thomas's and most of the students in the second and third clinical years also returned to the hospital, only a few being distributed as clerks and dressers elsewhere in the sector. Clinical teaching was also given at Lambeth Hospital (L.C.C.) and midwifery was arranged for at Lambeth, St. James, Balham and Guildford. The outpatient departments at St. Thomas's are now reopening and the beds available for civilian sick are again organised under the normal firms. Clinical teaching is being resumed in these wards and it is hoped that before long the hospital will be running normally with an associate hospital in the sector as a reserve if air-raids come.

The October entry of students at *University College Hospital* remain for the first year at Cardiff, the rest of the first year being at the base hospital at Leavesden. It is proposed to start the April entry at Leavesden, though there is some doubt whether the Ministry of Health will allow an adequate amount of clinical material to be maintained there. The second and third year are at U.C.H., but it has not been decided how far further beds will be opened up. Courses of lectures in medicine, surgery, pathology, anæsthetics and so on have been arranged at U.C.H. and medical and surgical ward rounds, lectures and post-mortem demonstrations at Leavesden. Instruction in children's diseases is being given at Great Ormond Street.

The students of the *West London* school have all remained at the parent hospital throughout the war. After the first fortnight of war teaching was reorganised, and owing to the presence of a number of whole-time members of the honorary staff and registrars

the formal teaching was actually increased—that is to say, there were more regular lectures and classes than usual. The ward teaching suffered from lack of material but this defect has steadily diminished as more and more beds have been made available for ordinary civilian sick. The paucity of clinical material has been compensated for, to some extent, by a more rapid turnover, made possible by evacuation of patients to outer hospitals. It has been possible to have the usual courses of special lectures in the school, but the pathological department was closed on the outbreak of war and is still closed. Temporary arrangements have been made for pathology under Professor Dible at the British Postgraduate Medical School. A few students are being sent to the Hammersmith Hospital for clinical clerking for the next three months, and additional medical teaching is being given at Fulham.

PUBLIC HEALTH

Diphtheria at Redhill

SINCE the middle of October, 37 cases of diphtheria have been notified at Redhill, Surrey, and the outbreak has attracted some attention in view of the town's recent relative immunity; for in 1938 only 5 cases were reported in the borough of Reigate, the average for the previous ten years being just over 32 cases a year. Way back in September, 1931, Reigate borough council provided facilities for Schick-testing and immunisation as a public service and the response was brisk for a while, lapsing later, when there was less incentive owing to the small number of actual cases. During this quiet period it was possible to immunise the population of certain residential institutions in the borough which had been contributing more than their share to the notifications. Returning to 1939, the only two cases notified before October were a woman of fifty, believed to have contracted infection elsewhere, and a school child with a discharging ear from which K.L.B. were isolated. Of the 37 cases notified since the middle of October (7 of them on bacteriological findings only) 11 were persons received into the area under the Government evacuation scheme. All the 3 fatal cases were in local children. The outbreak, Dr. T. H. Bingham tells us, originated from a residential institution the inmates of which attend elementary and secondary schools in the borough. They had all been Schick-tested about four years ago when those giving positive results were artificially immunised. Of the 6 cases notified from this institution, 5 were Schick-negative when tested and one had been immunised. Although the infecting organism was found to belong to the *gravis* type, the clinical course in all these cases was very mild. Dr. Bingham adds that up to the present time the outbreak has been practically confined to children attending the same school as those from the institution in question. There is strong presumptive evidence that the infection was introduced into the borough by evacuees from other areas.

Points from Annual Reports

Dr. McClosky, of *Darwen, Lancs,* gives a gloomy report: little or no improvement in economic conditions; unemployment still rife and the low wages of the employed making their conditions as bad as the unemployed; wives working as well as, or instead of, their husbands, with consequent deterioration of child culture; slums scheduled for destruction but allowed to deteriorate still further, and the population steadily declining. It is almost facetious to say that there is no overcrowding. The vital statistics show the influence of unfavourable conditions. The birth-rate, though the highest since 1929, was but 11·86, and the death-rate 15·78—rates nearly the reverse of those in the country as a whole. The infantile mortality was not so unfavourable at 58, but the maternal mortality at 7·55, the lowest but one (5·42 in 1936) since 1931, is still very high, though in the three darkest years of depression the rates were 13·95, 10·38 and 17·19. Dr. McClosky is fully justified in saying "It is infamous that women should be working in mills shortly before and after confinement," and "It is absurd that civilisation which has produced so much wealth cannot achieve a greater measure of health and happiness for the people."

At *Smethwick* 1938 was one of the most difficult and unsatisfactory in the annals of public-health endeavour due to decline in trade, unemployment, international tension and the "relative neglect of true public health matters consequent on A.R.P." The year's statistics are not on the whole unsatisfactory, the worst points being a rise in infantile mortality to 62·2, the highest rate since 1932, a rise in tuberculous mortality to 0·08, the highest rate since 1929, and the prevalence of diphtheria to the extent of 185 cases with 11 deaths. Of the last Dr. Paul says "all unnecessary and all preventable." The population of Smethwick has been declining since 1928, when it was 86,870, to 76,670 in 1938. As the birth-rate has been persistently higher and the death-rate lower than those of the whole country, the decline has been entirely by emigration.

The borough of *Poole, Dorset,* is an old harbour town and is still an important port, for in 1938 nearly 300,000 tons of shipping entered it, but of recent years it has become a leading health resort as well. Its growth has been extraordinary, the population having doubled since 1910. In 1938 it was 68,860. The rapidity of its growth has not been without disadvantages. Dr. Horne reports that in 1906 there were 825 cesspools in the town; in 1914 the number had sunk to 200; but by 1937 it had risen again to 826. Further, the number of empty houses had increased rapidly, reaching 709 in 1938, while in the same year 751 new houses were erected. The expansion of the town is also causing the disappearance of the pine-trees to which Poole owes much of its fame as a health resort. Dr. Horne has been much concerned over the cesspools for many years and like most hygienists was bitterly disappointed that the Public Health Act, 1936, did not allow of their final abolition in urban areas.

The report of Dr. G. L. Brocklehurst, of *Margate,* is a cheerful one. The birth-rate in 1938 was 11·3, the death-rate 11·1 and the infantile mortality, which was 169 in 1900, was 24·6. The least favourable feature was the high illegitimacy rate of 68 per 1000 total births. The extraordinarily low infantile mortality is less than half that of the three preceding years and is probably a record for any town of appreciable size. In 1938 Margate held the year's record of sunshine with 1831·4 hours.

CALDECOTE HALL.—At the outbreak of war this home was offered to the War Office as a hospital for officers. The unexpected course of hostilities has, however, made this unnecessary and Caldecote Hall is once more open for the treatment of neurasthenia and drug and alcoholic addiction.

OBITUARY

HENRY LOCKE PADDON

M.A. OXFD, M.R.C.S.

Harry Paddon, medical officer of the International Grenfell Association, Labrador, died suddenly on Christmas Eve at Haverford, Pennsylvania, where he and his wife were starting on their six months furlough after a spell of four years at North West River. They were to spend Christmas with their sons now being educated in the United States. Paddon was only 58, but he had spent 28 years in pioneer work in Labrador.

As a boy of 8, during a summer holiday spent among the fishing boats at Sheringham, Harry Paddon declared his intention of going as a missionary to fishermen some day. This aim was fostered in his student days by the visit to Repton of Dr. Grenfell of Labrador, whose enthusiasm was infectious. Later, as a medical student at St. Thomas's Hospital, he followed Grenfell's example by repeatedly visiting the trawlers on the North Sea; there he was entirely at home among the fishermen. He qualified in 1911 and a year later began his work in Labrador. Like his chief, Sir William Grenfell, he was doctor, magistrate, chief scout, and often the unordained clergyman, ministering to the Labrador folk in any and every way. Last summer he again acted as skipper on the motor-boat *Maraval*, visiting and collecting patients up and down the heavily indented coast, and last winter he again drove his komatik over snow and ice for hundreds of miles, visiting the scattered hamlets. The oversight of the mission schools was as much his work as the charge of hospital or nursing station. He taught the community of North West River, and far beyond, the value of work. Hand-work was made an industrial success. Farming—on the small scale possible on such barren rock—was initiated, even to the point of installing a bull and a cow (never before seen in Labrador), pigs and poultry, and though eight months of winter to four months of summer made farming difficult, Dr. Paddon convinced the sceptical of its practicability. He introduced agriculture also, raising thousands of green vegetable plants each brief summer from seed, and Mrs. Paddon taught the people to bottle and turn into jam the abundant berries of the coast hitherto neglected. Tenacity of purpose was Harry Paddon's outstanding characteristic, and now the well-equipped mission at North West River which he founded and built up testifies to this perseverance.

C. D. C. writes: I first met Harry Paddon during the summer and winter of 1938, but long before that I had heard of this amazing doctor who travelled "the Coast" by dog team in winter and by boat in summer, mainly bent on rendering medical aid to the sick, but also helping the people in all their troubles. As a J.P. he settled nearly all his cases out of court. As a farmer he encouraged the cultivation of vegetables and rearing of live stock. He supplied needy fishermen with gear for catching cod, salmon and herring. The fur trappers on their rounds often met the doctor, who was ready to help them if ammunition or grub were running low. Dr. Paddon established the first Labrador public school and helped to build at North West River the most flourishing community of people in Labrador. But public health and preventive medicine were his greatest work. To this end he travelled 5000 miles by boat and 3000 by dog team every year, teaching the principles of hygiene and inoculating Anglo-Saxon, Indian and Esquimaux against diphtheria, scarlatina and typhoid fever. On these journeys he met with many adventures. On one occasion he spent a whole day trailing an armed homicidal lunatic who had terrorised the district, and finally arrested him on the charge of "breach of peace," a suggestion which the patient thought so reasonable that he quietly accompanied the doctor to a place of custody. I well remember meeting Dr. Paddon one winter's day. He had just completed a long day's journey through deep snow and bitter cold. He was far from well, but his first thought was for the stranger, and he hastened to get his frozen stew out of the sledge-box and prepare a meal for me. He was a hardy man of great physical strength, and he had a vision of health and prosperity for all the people of Labrador. To that end he strove mightily and accomplished much, but his great driving force was his faith in God.

WILLIAM LEONARD ELIOT REYNOLDS

M.C., M.R.C.S., LIEUT.-COL. R.A.M.C.

Colonel Reynolds was drowned when the s.s. *Yorkshire*, on which he was returning home from India, was torpedoed in the Bay of Biscay on Oct. 17. He was born in 1889, and was educated at King's School, Canterbury and Guy's Hospital, where he qualified in 1915. He was appointed to the R.A.M.C., S.R., in September, 1914, and mobilised in February, 1915. He served with distinction in France, being awarded the M.C. and mentioned twice in dispatches. From 1925 to 1928 he was at the depôt and as adjutant there he gained the respect of all ranks for his tact and efficiency and quiet dignity. In 1933 he became deputy-director of medical services in India for six months and then was deputy assistant director-general of Army Medical Services at the War Office until 1937. In August of last year he received accelerated promotion to lieutenant-colonel for his valuable services.

JOHN ANDERSON

M.B. GLASG., F.R.F.P.S.

THE death occurred last week at his residence in Glasgow of Dr. John Anderson who was, until his retirement about a year ago, director of the pathological and research laboratory of the Victoria Infirmary, Langside. Dr. Anderson graduated at Glasgow University in 1895. He served as assistant pathologist at the Crichton Royal Institution, Dumfries, and in 1899 started his long association with the Victoria Infirmary as pathologist. For a time he engaged in private practice, but in 1913 when the clinical research laboratory was opened he was appointed full-time pathologist and director. About 25 years ago he became associated with the Procurator Fiscal's department in doing post-mortem work and appeared frequently as expert witness. As a Crown adviser he was associated with the late Professor Glaister and together they built up a reputation that did much to maintain the high plane on which the criminal administration in Scotland, and particularly in the West of Scotland, deservedly stands. Expert investigators applying fearlessly their findings and their deductions, and facing their inevitable conclusions, they did much to bring law-breakers to face the consequences of their crimes. Yet their fair-mindedness, the thorough nature of their work and their readiness to concede anything that might be to an accused person's benefit went far to convince all who came in contact with them that they would not be parties to any injustice.

Dr. Anderson became a familiar figure in the Scottish criminal law courts where he made his appearance in many important trials when he brought his comprehensive experience in pathology to bear upon their many problems and complexities. Outstanding qualities in his personality were kindliness and modesty which were clearly observable to all who had the honour of knowing him. Scottish criminal courts will miss his wisdom and his many friends will miss his kindly presence. He leaves a widow and a family of five, two of whom are members of the medical profession.

ERNEST CHARLES YOUNG

M.D. DURH.

Dr. Young, who died on Jan. 6 at the age of 65, was educated at Durham University and studied medicine at St. Mary's Hospital, Paddington, qualifying M.B. Durh., with honours in 1905. Two years later he took the gold medal at the M.D. After qualifying he was clinical assistant at various London hospitals before joining the staff of the Farringdon General Dispensary and later the Princess Beatrice Hospital. A. E. M. W. writes: "Professionally Young will best be remembered for his introduction of the method of intubation in the treatment of peptic ulcer, a treatment that in some hands has become standard. He had always been interested in diseases of the gastro-intestinal tract and had won the gold medal at Durham for a thesis on this subject. He himself was a victim of duodenal ulcer, and though he knew this and during the whole of his life had suffered much he neglected his own case, while displaying the utmost enthusiasm in the treatment of his patients. Perhaps Young's outstanding characteristic was his sympathy and innate power of making one believe that his one object in life was to help. And he helped many but never himself—in fact, it is not too much to say he neglected himself in the interests of others. At the time of his death he was emeritus physician to the Princess Beatrice Hospital, which he had served for many years. Also he was senior physician to the Farringdon Dispensary. He had been president of the Hunterian and Chelsea Clinical societies. Young was an intensely religious man, and though as regards himself some might have thought his views narrow, yet in dealing with others and with the world at large, he was broadminded, tolerant and sympathetic. He was one of those who did real good in the world—perhaps its measure will never be realised as Young was a retiring man, hating the limelight and anything savouring of advertisement. He will be missed by all who knew him."

MEDICAL NEWS

University of Oxford

Mr. H. J. Seddon has been appointed to the Nuffield chair of orthopædic surgery in the university.

Mr. Seddon was educated at the Hulme grammar school, Manchester, and entered St. Bartholomew's Hospital in 1920, qualifying in 1925 and taking honours in surgery, pathology and midwifery at the London M.B., B.S., where he was awarded the university gold medal. In the same year he became F.R.C.S. While at the hospital he took the junior, senior and Brackenbury scholarships, the Harvey, Foster and Walsham prizes, and the Willett medal. He was house surgeon first to Sir Holburt Waring and later to Mr. Douglas Harmer in the throat department, then demonstrating anatomy under Prof. Le Gros Clark and assisting Sir Harold Gillies. Part of this time he was registrar at the Royal National Orthopædic Hospital. In 1930 he was appointed to an instructorship in surgery at Ann Arbor, Michigan, under Prof. Hugh Cabot and Dr. Vernon Hart and he spent two months visiting orthopædic clinics in the U.S.A. and Canada. In 1931 he returned to Bart's as chief assistant to Mr. Elmslie in the orthopædic department and in June of that year became resident surgeon at the Stanmore branch of the Royal National Orthopædic Hospital. Here with four resident officers he was able to plan out systematic clinical research on certain lines, especially the spread of infection to regional lymph glands and the vital staining of such glands as a means of ascertaining infection. At Stanmore he gave demonstrations to students from four London hospitals, and supplementary classes in orthopædics to final-year Middlesex students. In 1933 the British Orthopædic Association awarded him the Robert Jones gold medal for an essay on Potts's paraplegia and in 1935 he delivered a Hunterian lecture on caries of the thoracic spine.

University of London

At recent examinations the following were successful:—

M.D.

Branch I (Medicine).—W. I. C. Balfour, St. Bart's; K. P. Ball, Middlesex; A. C. Dornhurst, St. Thos.; D. L. H. Goddard, St. Thos.; G. B. Hollings, St. Thos.; J. Ketcher, London Hosp.; K. J. Mann, Univ. Coll.

Branch II (Pathology).—Barbara M. Hope, King's Coll., Camb.

Branch III (Psychological Medicine).—A. S. Thorley, Univ. Coll.

Branch IV (Midwifery and Diseases of Women).—Dorothy S. Pope, Roy. Free;

Branch V (Hygiene).—C. W. Dixon, King's Coll. & London School of Hygiene & Tropical Medicine; and H. A. Leggett, Guy's.

M.S.

Branch IV. (Oto-Rhino-Laryngology).—B. M. Fonseka, Middlesex Hosp.

D.M.R.

S. H. Ali, Middlesex Hosp.; and Nathan Sacks, St. Bartholomew's Hosp.

Royal Air Force

Air-Commodore H. E. Wittingham, F.R.C.P.E., has been granted the acting rank of air vice-marshal.

Royal College of Surgeons of England

On Jan. 19, Mr. Digby Chamberlain will give the first of a series of *Hunterian lectures* to be held at the College on Mondays, Wednesdays and Fridays at 3 P.M. He will speak on the treatment of stone in the common bile-duct.

The other lecturers are as follows: Jan. 22, Mr. Rainsford Mowlem, the use and behaviour of cartilage and bone transplants; Jan. 24, Mr. Hermon Taylor, the practical evaluation of gastroscopy; Jan. 26, Mr. E. C. B. Butler, the treatment, complications and late results of acute hæmatogenous osteomyelitis; Jan. 29, Mr. A. H. McIndoe, inlay grafting, with special reference to obliterative conditions of the vagina; Jan. 31, Surgeon Rear-Admiral Cecil P. G. Wakeley, the treatment of certain types of external herniæ; Feb. 2, Mr. D. Ll. Griffiths, Volkmann's ischæmic contracture; Feb. 5, Mr. F. F. Rundle, the rôle of the liver in thyrotoxicosis; Feb. 7, Mr. Kenneth Eden, dumb-bell tumours and neurofibromatosis of the spine with special reference to bone changes; Feb. 12, Mr. Michael Oldfield, the anatomy and physiology of speech with especial reference to the treatment of cleft palate; Feb. 19, Dr. S. A. Henry, cancer of the scrotum in relation to occupation.

At the recent primary examination for the fellowship of the College the following were successful:—

E. W. O. Adkins, M.B. Camb.; W. H. Bond, Birm.; G. Brosnan, M.B. Melb.; J. G. Brown, M.B. Melb.; W. N. Campbell, M.B. N.Z.; F. W. Connaughton, M.B. Melb.; D. J. Dawson, M.B. Aberd.; H. E. H. Denham, M.B. N.Z.; G. F. Dommisse, M.B. Cape Town; P. D. Eeman, Camb.; D. T. H. Evans, L.R.C.P.; J. C. Fulford, Birm.; L. Gillis, M.B. Rand; J. R. Grimoldby, M.B. Sheff.; G. St. J. Hallett, M.B. Camb.; C. G. D. Halstead, M.B. N.Z.; W. Hewitt, St. Mary's; H. N. G. Hudson, M.B. Lond.; H. D. Johnson, M.B. Camb.; T. D. Kelly, M.B. Adelaide; A. E. Kingston, M.R.C.S.; H. Lal, M.B. Punjab; H. E. Lockhart-Mummery, Camb.; R. Marcus, M.B. Lpool; J. R. Pandya, M.B. Bombay; H. G. Patel, M.B. Bombay; W. L. Phillips, M.B., M.R.C.P.; C. R. Rapp, M.D. Toronto; Kathleen M. Robinson, M.B. Lond.; P. M. G. Russell, M.B. Lond.; M. H. M. Ryan, M.B. Melb.; M. F. Sayed, M.B. Cairo; S. F. Taylor, B.M. Oxfd.; L. C. Thomson, M.B. Lond.; J. V. Todd, M.B. Durh; J. F. N. C. Ward-McQuaid, St. Mary's; and K. W. Wilkinson, St. Mary's.

British Institute of Radiology

On Friday, Jan. 19, at 2 P.M., Prof. F. L. Hopwood, D.Sc., will deliver the twenty-second Silvanus Thompson lecture on the irradiation of liquids. Dr. L. A. Rowden will also give the twentieth Mackenzie Davidson lecture. He will speak on maternal mortality and radiology.

Order of St. John of Jerusalem

The following promotions in, and appointments to, the Venerable Order of the Hospital of St. John of Jerusalem have been sanctioned by the King.

As Commander.—John Welsh, M.R.C.S.

As Officer.—Arthur Ferguson MacCallan, F.R.C.S.; Captain Norman Ward Rawlings, L.M.S.S.A.; Frank Leslie Newton, M.B.; Captain William Arthur Rees, F.R.C.S.; John Forbes, M.B.; Lieut.-Colonel Alured Charles Lowther O'Shee Bilderbeck, M.R.C.S., L.M.S.; Colonel Gordon Grey Jolly, C.I.E., M.B., I.M.S., and Colonel Reginald Stephen Townsend, M.D., I.M.S.

British Orthopædic Association

The association held its annual meeting on Dec. 8 in London instead of in Cardiff as planned; it was limited to one day. Owing to the death of the president, Mr. Naughton Dunn, the meeting was conducted by the vice-president and president-elect, Prof. T. P. McMurray. A series of short papers were given, of which the first was on the treatment of compound fractures by Dr. Trueta. He outlined the treatment which he had found highly successful in over 1,000 compound fractures produced by aerial bombs during the Spanish civil war. He emphasised the necessity for the speedy transfer of casualties to hospital and for their proper segregation by experts on arrival. For the prevention and combating of sepsis he advised: (1) a careful excision of all damaged tissues, and particularly muscle, preferably within two hours of the injury; (2) adequate drainage of all cavities by sterile absorbent gauze; and (3) rigorous immobilisation secured in the vast majority of injuries by plaster-of-paris applied directly on the skin without padding and without a window over the wound. The only exception to the use of plaster-of-paris was in those patients in whom there was doubt about the vitality of the tissues remaining after excision, or doubt about the total circulation of the limb. Gas-gangrene had occurred in only 1 patient, and in only 8 had the plaster to be removed because of cellulitis in the region of the wound. Next Mr. H. J. Seddon (London) reviewed 176 cases of tuberculous disease of the sacroiliac joint, collected from various open-air hospitals throughout England. It is a disease chiefly of young adults and there are three distinct clinical types (*a*) an isolated closed lesion with a case-fatality rate over a six-year period of 10 per cent.; (*b*) an isolated lesion with sinuses, with a case-fatality rate of 25 per cent.; and (*c*) a lesion with or without sinuses but accompanied by a lesion elsewhere in the body, with a case-fatality rate of 55 per cent. Abscess formation is common. Bony ankylosis appears to be the usual end-result of conservative treatment even in the absence of secondary infection. Fusion of the joint by operation may be beneficial but the merits of this procedure have not yet been clearly demonstrated. Recovery generally means that the patient will be able to return to full work and relapse is very rare; some chronic invalidism is due to sinuses. Mr. A. O. Parker (Cardiff) dealt with fractures of the external tuberosity of the tibia. He expressed disappointment with the result of conservative treatment, and tentatively suggested that in certain of these fractures a better reconstruction of the damaged articular plateau could be obtained by an open operation. From a limited experience he felt that the external semilunar cartilage torn from its peripheral or central attachments presented an obstacle to successful conservative reduction of the fracture more often than was realised. Mr. Jenner Verrall presented an abundance of instructive information about amputations gained from his long experience at Queen Mary's Hospital for the Limbless, Roehampton. He surveyed in detail every step in operation technique and in the fitting of artificial limbs. Of his many useful hints perhaps the one least commonly known was that nerves should never be crushed, ligatured, pulled down and cut short, or injected with alcohol. Mr. K. I. Nissen (London) discussed the value of irradiation in the treatment of primary tumours of bone, based his remarks on 90 cases treated at the Westminster Hospital radium annexe during the past eight years. Many of them were inoperable and irradiation was the only possible form of treatment. Implantation of radium needles or seeds was condemned and was not used in this series. External irradiation by deep X rays or radium bomb is vastly superior, for it has the advantage of accurate dosage and control of direction without trauma to the tumour. In tumours with a bulky stroma and relatively poor vascularity—e.g., chondro-sarcoma—irradiation is of little use and the value of amputation or excision is undisputed. In highly malignant and vascular osteogenic sarcomata metastases occur so early that death is inevitable whatever treatment is employed. The best that irradiation can do is to retain a painless and useful limb for the remainder of the patient's life. In less malignant sarcomata high dosage is necessary and local recurrences take place about a year after the commencement of treatment. Further irradiation may control spiculated periosteal growth but medullary extensions are most intractable.

Faculty of Radiologists

On Jan. 19 at 10.30 A.M. at 1, Wimpole Street, London, W.1, Mr. E. Rock Carling will deliver the Skinner lecture on the faculty. The title of his address will be Irradiation Assailed, or the Buried Talent.

Harveian Society of London

This society will hold a Buckston Browne luncheon at the Langham Hotel, London, W.1, on Wednesday, Jan. 31, at 12.45 P.M. Further information may be had from the hon. secretaries, 14, Devonshire Street, W.1.

Buckston Browne Prize Essay

The prize of £100 for 1939 has been won by Captain Robert Kemp, M.D., R.A.M.C., Dr. James Aitken being proxime accessit. The subject of the essay was the value of periodic medical examination in middle life.

CHART FOR BABY'S FIRST MONTH.—Of the making of charts there is no end. Messrs. Oliver and Boyd, Tweeddale Court, Edinburgh 1, have published a "Baby Chart: the First Month," which is unusually compendious, having spaces for pregnancy and labour, for charting weight and temperature, and for recording feeds, vomits, stools and so on. On the obverse there is a key explaining the use of 32 abbreviations and symbols, on the reverse reasonable space is left for those, unversed in cabalistic signs, who write their observations longhand. Too often the newborn infant is only allowed a snippet of his mother's case-sheet, and those who learn to use this chart should find it thoroughly useful. Copies may be had from the publishers at 1*s.* 6*d.* a dozen or 10*s.* a hundred.

Births, Marriages and Deaths

BIRTHS

ANDERSON.—On Dec. 23, at Dundee, the wife of Dr. N. E. W. Anderson, West African Medical Service—a son.

COOKSON.—On Jan. 4, at Bournemouth, the wife of Dr. S. Harold Cookson—a daughter (stillborn).

JONES.—On Jan. 2, at Morden, to Evelyne, the wife of Dr. G. L. Jones—a son.

JONES.—On Jan. 8, at St. Pancras Hospital, the wife of Mr. A. Norman Jones, F.R.C.S.—a son.

LYTHGOE.—On Jan. 6, at Cambridge, the wife of Dr. R. J. Lythgoe—a daughter.

POPE.—On Jan. 7, at Beckenham, the wife of Dr. Samuel Pope—a son.

MARRIAGES

JORDAN—THOMAS.—On Jan. 6, at Devynock Church, Breconshire, Norman Theodore Kingsley Jordan, M.D., to Anne Isobel Thomas, of Senny Bridge.

PAYNE—HAILEY.—On Jan. 3, at Oxford, Donald Derry Payne, M.D., of Upper Norwood, to Alison Mary Hailey, of Oxford.

POCHIN—TILLY.—On Jan. 6, at Seaton Carew, Durham, Dr. E. E. Pochin to Peggy Tilly, of Seaton Carew.

READ—WILSON.—On Dec. 14 in London, Charles David Read, F.R.C.S.E., to Frances Edna Wilson, M.B.

DEATHS

DINGWALL-FORDYCE.—On Jan. 7, in Liverpool, Alexander Dingwall-Fordyce, M.D.Edin., F.R.C.P.E., physician to the Birkenhead and Wirral Children's Hospital.

MILLAR.—On Jan. 2, at Streatham Hill, William Heptinstall Millar, M.D.Brux., M.R.C.S.

PERNET.—On Jan. 6, George Pernet, M.D.Paris, M.R.C.S., consulting dermatologist to the West London Hospital, aged 78.

WATSON.—On Jan. 3, Arthur Hubert Watson, M.D.Dubl., senior surgeon to Salisbury General Infirmary.

YOUNG.—On Jan. 6, Ernest Charles Young, M.D.Durh., consulting physician to the Princess Beatrice Hospital, aged 65.

Medical Diary

Week beginning Jan. 15

ROYAL SOCIETY OF MEDICINE, 1, Wimpole Street, W.1.

TUESDAY
2 P.M., General meeting of fellows.

WEDNESDAY
Surgery, 2.30 P.M., Mr. Zachary Cope: Extra-abdominal Resection of the Colon (Presidential address).

THURSDAY
Neurology: 2 P.M.
Prof. Geoffrey Jefferson: Extrasellar Extensions of Pituitary Adenomata (Presidential address).

Radiology: 2.30 P.M.
Prof. J. W. McNee and Mr. Robert McWhirter: Cholecystitis.

FRIDAY
Radiology: 11.30 A.M.
Dr. F. M. Allchin and Miss Margaret Tod: Treatment of Metastases.

Physical Medicine: 2 P.M., cases. 3.30 P.M.
Dr. J. B. Mennell: Abnormal Feet.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.2.

FRIDAY.—3 P.M., Mr. Digby Chamberlain: Treatment of Stone in the Common Bile-duct.

BRITISH INSTITUTE OF RADIOLOGY, 32, Welbeck Street, W.1.

FRIDAY.—2 P.M., Prof. F. L. Hopwood, D.Sc.: The Irradiation of Liquids (Silvanus Thompson lecture). Dr. L. A. Rowden: Maternal Mortality and Radiology (Mackenzie Davidson lecture).

TAVISTOCK CLINIC, Westfield College, Kidderpore Avenue, N.W.3.

MONDAY.—3 P.M., Dr. Karin Stephen: (1) The Freudian Approach; (2) Transference.

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.12.

TUESDAY
2.30 P.M., Lord Horder: Ward clinic.

WEDNESDAY
11.30 A.M., clinical-pathological conference (medical). 2 P.M., Prof. J. H. Dible: Peptic Ulcer and Gastric Carcinoma. 3 P.M., Clinical-pathological conference (surgical).

THURSDAY
2 P.M., Dr. Duncan White: Radiological conference.

FRIDAY
2 P.M., Clinical-pathological conference (gynæcological).

DAILY
10 A.M.–4 P.M., Medical clinics; surgical clinics and operations; obstetrical and gynæcological clinics and operations. 1.30–2 P.M., post-mortem demonstration.

FACULTY OF RADIOLOGISTS.

FRIDAY.—10.30 A.M. (1, Wimpole Street, W.1), E. Rock Carling: Irradiation Assailed, or the Buried Talent (Skinner lecture).

SATURDAY
10.30 A.M. (32, Welbeck Street, W.1.), Col. A. B. Smallman, Mr. R. G. Hutchison, Col. W. L. Harnett, Dr. W. M. Levitt, Dr. R. W. Scarff, and Dr. Ralston Paterson: The Promotion of Uniformity in the Staging of Malignant Disease.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.1.

MONDAY—4 P.M. Pathological meeting.

FELLOWSHIP OF MEDICINE & POSTGRADUATE MEDICAL ASSOCIATION, 1, Wimpole Street, W.1.

MONDAY to SATURDAY.—St. Mary's Hospital, W.2.

TUES., WED., and THURS., 9.0 P.M., F.R.C.S. (Final course).—Royal Cancer Hospital, Fulham Road, S.W.3. Daily 9.30 A.M. F.R.C.S. course.—MON. (afternoon and evening) and THURS. and FRI. (afternoons) operative surgery class.—Royal National Orthopædic Hospital, Brockley Hill, Stanmore. FRI. 2 P.M., orthopædic course.—Medical Society of London, 11, Chandos Street, W.1. THURS. 4.30 P.M., Mr. A. J. Cokkinis: Treatment of War Injuries. FRI. 4.30 P.M., Mr. C. A. Joll: Thyroid.

Vacancies

Barking Borough.—Deputy M.O.H. and deputy school M.O., £725.
Barnes, Borough of.—M.O.H., £1000–£1150.
Barry Accident and Surgical Hosp.—Res. surg. O., £350.
Bath, Royal National Hosp. for Rheumatic Diseases.—Res. M.O., £150.
Bedford County Hosp.—Second H.S., at rate of £150.
Benenden, Kent, National Sanatorium.—H.P., at rate of £150.
Berkshire County Council.—Asst. M.O., £500.
Birmingham City.—Two asst. school M.O.'s, £500.
Bristol General Hosp.—Cas. H.S., at rate of £100. H.P.'s, H.S.'s. Also res. obstet. O., each at rate of £80.
Bristol Royal Infirmary.—Res. med. appts., at rate of £150–£80.
*Central Middlesex County Hosp., Acton Lane, Willesden, N.W.*10. Temp. asst. pathologist, £650.
Chester Royal Infirmary.—H.S. to orthopædic dept., £150.
Coventry, Coventry and Warwickshire Hosp.—H.S. to fracture and orthopædic dept., at rate of £150.
Coventry City.—Asst. res. M.O. at rate of £250.
Dover, Royal Victoria Hosp.—Res. M.O., £140.
Durham, Richard Murray Hosp., Blackhill.—H.S., £200.
Epsom County Hosp.—House officer, £200.
*Evelina Hospital for Sick Children, S.E.*1, *Outpatient Officer.*—House Surgeon at rate of £120.
Glasgow Royal Infirmary.—Surgical officer for rehabilitation dept.
Grimsby, Scartho Road Infirmary.—Res. M.O., £350.
Hostel of St. Luke, 14, *Fitzroy Square, W.*1.—Res. M.O., at rate of £200.
Keighley, Keighley and District Victoria Hospital.—1st and 2nd R.M.O., at rate of £160 and £120 respectively.
Liverpool, Alder Hey Children's Hosp.—Res. asst. M.O.'s, each at rate of £200.
Liverpool City.—Res. asst. M.O.'s for Walton Hosp. and Mill Road Infirmary, each £200.
Liverpool Royal Babies' Hosp., Woolton.—Temporary vacancy on staff.
Liverpool Royal Children's Hosp.—Res. cas. O., £250. Two res. H.P.'s and two res. H.S.'s for City Branch, each at rate of £100. Also res. M.O. and res. surg. O. for Heswall Branch, each at rate of £120.
London County Council.—Temp. asst. M.O.'s, each £250.
Manchester City.—M.O. for maternity and child welfare, £600.
Manchester, Duchess of York Hosp. for Babies.—Registrar, £50.
Manchester Northern Hosp., Cheetham Hill Road.—Res. H.P. and res. H.S., each at rate of £100.
Manchester, St. Mary's Hospital.—Three H.S., at rate of £50.
Middlesbrough, Holgate Municipal Hosp.—Asst. res. M.O., £270.
Newcastle-on-Tyne Eye Hospital.—J.R.H.S., £150.
Newcastle upon Tyne, Royal Victoria Infirmary.—Res. M.O., £350.
Northampton General Hosp.—Cas. O., at rate of £150.
Nottingham General Hosp.—H.S. to orthopædic and fracture dept., at rate of £150.
Oxford, Wingfield-Morris Orthopædic Hosp., Headington.—Lord Nuffield scholarship in orthopædic surgery, £200.
Plymouth, Prince of Wales's Hosp., Greenbank Road.—H.S., at rate of £120.
Prestwich, near Manchester, County Mental Hospital.—A M.O., £550.
Royal National Orthopædic Hosp.—Res. surg. and med. supt., at rate of £1250.
*Royal Northern Hosp., Holloway, N.*7.—H.S., at rate of £70.
*Royal Waterloo Hosp. for Children and Women, Waterloo Road, S.E.*1.—H.P., at rate of £100.
*Saint Mary's Hosp. for Women and Children, Plaistow, E.*13.—Res. H.P., at rate of £150.
Salford Royal Hosp.—Res. surg. O., £200.
Salisbury General Infirmary.—Res. M.O., £250. Also H.S., at rate of £125.
Sheffield Royal Infirmary.—Clin. asst. to dermatological dept., at rate of £300.
Surrey County Council.—Two asst. M.O.'s, each £600.
Torquay, Torbay Hosp.—H.S., £175.
West Bromwich, Co. Boro., Hallam Hospital.—H.P. and H.S., each at rate of £200.
Wolverhampton Royal Hosp.—Res. surg. O., £200. Also asst. res. M.O., for gynæcological and obstet. depts., at rate of £100.
York County Hosp.—H.S. to eye, ear, nose, and throat dept., £150.

The Chief Inspector of Factories announces a vacant appointment for an Examining Surgeon at Salford, Lancaster.

Appointments

ASHER, CÉCILE H. D., M.D. Lond., D.C.H., deputy medical officer of health and assistant school medical officer for Erith.

COWAN, H. ALEXANDER, F.R.C.S.E., D.L.O., registrar in the ear, nose, and throat department of the Royal Free Hospital, London.

DANIELS, MARC, L.R.C.P.E., D.P.H., assistant medical officer of health to Kesteven county council.

VERITY, CARL, M.B. Manc., D.P.H., assistant tuberculosis officer for Manchester.

Colonial Medical Service.—The following appointments and promotion are announced:—

CAUCHI, F. J., M.D. Malta, resident surgeon, St. Vincent, Windward Islands;

CLAPHAM, L. J., M.B. Lond., medical officer, Malaya;

DISMORR, E. S., M.B. Camb., medical officer, West Africa;

GILLETT, A. Scott, F.R.C.S.E., senior medical officer, Dominica.

MUIR, V. V., M.B. Edin., medical officer, West Africa;

PAU, Peter, M.B. Hong Kong, D.P.H., health officer, British Guiana;

STOTT, H., M.B., medical officer, Kenya.

Examining Surgeons under the Factories Act, 1937: Dr. I. DOUGLAS-WILSON (Prestegn district, Radnorshire).

NOTES, COMMENTS AND ABSTRACTS

A VISIT TO SOUTH AMERICA

By GEORGE GREY TURNER, LL.D. Glasg., D.Ch. Durh., F.R.C.S.

PROFESSOR OF SURGERY IN THE UNIVERSITY OF LONDON AT THE BRITISH POSTGRADUATE MEDICAL SCHOOL

BUENOS AIRES ranks high in the scale of great cities not only because of its size but also because of its spacious lay-out and notable architecture. There are fine squares, public gardens and innumerable statues. The hospitals are for the most part old buildings in the colonial style with patios, colonnades, and ample open spaces, often laid out with flower-beds and shrubs between the pavilions; but in most cases new buildings are springing up in the grounds of the original institutions, and alterations have been made to bring the various departments up to date. But the days of some of the old hospitals seem to be numbered, and opposite the Institute of Clinical Surgery a modern building is springing up to form a hospital centre and medical school in the American style, with the central part eighteen stories high (see figure).

Foto Kasten.

Model of the new building under construction to house the Faculty of Medical Sciences in the University of Buenos Aires.

ARGENTINE SURGERY

At operations local and spinal anæsthesia are much used, largely because of the disinclination of the Argentino to lose consciousness. It is a wide-awake country, and the patients like to know what is going on. But general anæsthesia is gaining a foothold, some of the latest machines are in occasional use, and at least one member of the profession is devoting himself entirely to work as a specialist in anæsthetics. The lists of operations are singularly like those at home except that hydatids still take a prominent place, though this disease is not nearly so common as it used to be. Lung surgery is coming into its own, but neurosurgery is still some way behind, though it is mostly in the safe hands of a pupil and disciple of Harvey Cushing. In Prof. José Arce's clinic plastic surgery has been very largely developed by Dr. Oscar Ivanissevich, and at the time of my visit an exhibition of photographs, diagrams and models dealing with plastic surgery and its results was being held. Nearly all the photographs were in colour and were illuminated from behind. The municipal art gallery had lent some oil paintings of appropriate nudity, which enlivened the more technical exhibits. The exhibition was arranged to commemorate the twenty-fifth anniversary of Prof. Arce's occupation of the chair of surgery.

In the medical clinic of Prof. Mariano Castex one ward was devoted to diseases of the peripheral vascular system; here I saw many elderly men with advanced vascular starvation, in some cases with impending loss of the toes or part of a foot as the result of gangrene. Prof. Castex explained that they had made a special study of these cases, and that by the use of subcutaneous injections of carbon dioxide they were obtaining very good results; in fact, during the last two years it had not been necessary to perform a single amputation, although some patients had lost a small part of the foot. In nearly every case recovery was complete enough to allow the patient to resume his previous occupation.

At the Rawson Hospital I saw Prof. Enrique Finochietto, whose technique for gastrectomy by the Billroth No. 1 method is well known and largely used in South America. At the Hospital Ramos Mejia the theatre is of the ultramodern type, any but the most intimate visitors being entirely excluded from the floor and finding places in a gallery which is really outside the room, and from which they look down on the operations through plate-glass screens, communication with the operator being established through loud speakers. Dr. A. Ceballes demonstrated the case of a young boy on whom he had recently carried out a total pneumonectomy with an excellent result. In the same hospital I met Dr. Robertson Lavalle, whose work on the treatment of bone tuberculosis has been the subject of discussion for some years. I was shown one or two patients with evidence of well-developed Pott's disease who had been treated by his method of bone puncture and were apparently completely cured, though no plaster or fixation apparatus had been employed and no long period spent in bed. Dr. Lavalle operated on a typical Pott's spine. A small bone fragment about 2 in. long and about ¼ in. thick was cut from the front of the tibia. One side of the spine near the diseased area was exposed by an incision about 3½ in. long, as in the first stage of laminectomy. A hole was then made, with an instrument like a bradawl, from the root of the lamina obliquely forwards into the vertebral body just above the main lesion. Into this hole the spigot of tibial bone was driven, and the incision was closed. As soon as the wound had healed, the patient was to be allowed to get about freely without retentive apparatus of any sort. I also saw illustrations and X rays of cured cases which left one bewildered and wondering.

At the Hospital Rivadia Dr. A. J. Bongolea showed me some excellent results in cases of intractable vesico-vaginal fistulæ after labour treated by transplantation of the ureters. I also saw many specimens of large gall-stones passed spontaneously as a result of the exhibition of magnesium sulphate through a duodenal tube.

With a British colony of over 50,000, it is not surprising that the British Hospital in Buenos Aires is the largest outside the British Isles, and it was nice to find that half the new hospital with its fine wards and spacious balconies was already completed. The staff are all of British origin and are keen and enthusiastic.

ARABIAN NIGHTS MORGUE

In any city the morgue is not usually very attractive, but that certainly does not apply to Buenos Aires, for the building is embellished with marble, stained-glass windows, decorated ironwork, pictures, and statues. There are growing plants, flowers, trickling water, and soft lights, and it only requires the enchantment of music and incense to make one think of some scene from the Arabian Nights. The modeller who makes the death-masks was responsible for the statues, another of the staff painted the pictures, the engineer who looked after the refrigerator plant made the decorated ironwork, and so on. The post-mortem room was beautifully clean and was so effectively air-conditioned as to be entirely free from smell. One of the best features is a museum of medical jurisprudence about as large as the war collection at our College of Surgeons. The morgue is intended for the most part for the reception of bodies sent by the police, but, by request, any necropsy can be conducted there.

EXPERIMENTAL MEDICINE

The Institute of Experimental Medicine, directed by Prof. Angel Roffo, occupies a large area on the outskirts of the city. The many pavilions are situated in artistically laid-out grounds. Many patients are seen and treated here. The hospital contains a large outpatient department, wards for resident patients, laboratories for clinical work, operating-theatres, and ample provision for treatment by irradiation and all the ancillary methods which may be necessary in malignant disease. Prof. Roffo has been very interested in the problems connected with cancer of the skin, and by an examination of the skin with a special lamp he is able to detect those cases in which heavy deposits of cholesterol suggest a tendency to malignant development. All the work is checked, and the coloured photographs of the skin lesions were very convincing. In the laboratories they are at the moment particularly interested in the part that tobacco may play as a carcinogenetic agent. Tobacco of all varieties was being investigated, and in every case they had extracted a thick black oily substance which contained the carcinogenetic agent in various proportions, and we saw many experimental animals in which different types of surface cancer had been produced by painting with this substance. After this demonstration one could appreciate the idea behind propaganda posters which showed what was supposed to be the carcinogenetic agent falling from a cigarette and flowing like a black cloud over the greater part of the cancer-ridden globe!

MONTEVIDEO

From Buenos Aires we went to Montevideo, the capital of Uruguay. This very attractive city is 123 miles by river-boat from Buenos Aires, the journey being made overnight. Prof. Horacio Garcia Lagos is head of the surgical department of the principal hospital, and in his service were many remarkable examples of hydatid disease, which is still one of the commonest of all the conditions with which they have to deal. I saw two of these cases treated by marsupialisation, but could not help feeling that the very powerful suction pump, used for evacuating the parasites, might be dangerous in the hands of any but experts. They use a 2 per cent. solution of formalin very freely, not only to inject into the cyst before incision, but also to soak the gauzes which are packed round it.

ROSARIO

Our next visit was to Rosario, a large port on the Paraná river 3½ hours by rail from Buenos Aires. The city's half a million inhabitants are largely occupied in the grain and cattle trades. The principal hospital is old and dull, but the surgical side is very active, and I shall never forget the beautiful gastrectomy which I saw carried out under local anæsthesia by Prof. Oscar Cames, who makes a great feature of getting his patients up very early after operations. I saw a man walking about dressed in his ordinary clothes two days after he had undergone a large partial gastrectomy under local anæsthesia.

CÓRDOBA

Córdoba, the next stopping place, is not quite so large as Rosario, and is situated 432 miles from Buenos Aires. It is an old city, and the University is proud of the fact that it was the first in the republic and can look back on three hundred years of useful history. It was originally a Jesuit college and possesses a fine old library and a wonderful senate house, where the stalls for the professors are made of beautifully carved mahogany. The principal hospital is of the same old Spanish type but is to be gradually replaced by new pavilions. One of these pavilions is already finished and houses three departments, each on its own floor. The throat and ear department, under Dr. Heriberto Wilson, has a departmental library, lounge, and study rooms for the staff, besides the suite provided for the professor. Prof. P. L. Mirizzi is well known for his cholangiography carried out at the time of operation, and a collection of lantern slides illustrated the use of the method in all kinds of cases. Although most of the instruments in the physiological department were from Germany, probably about a third were of English design and manufacture, and it was encouraging to notice a large proportion of English journals and books in the departmental library. The Argentinos are largely pro-British and are much attracted by our methods and our culture.

SANTIAGO

From Córdoba we flew over the Andes, part of the flight being at a height of between 15,000 and 20,000 ft., to Santiago, where the hospital for "traumatology" is in a new building and is arranged after the style of the similar hospital presided over by Bohler in Vienna. The patients are accommodated in small wards. Skeletal traction is largely employed, and compound fractures are treated without any dressings and certainly seemed to do very well. Some very bad cases come from the campo and illustrate the difficulties of transport in a country with poor roads and few local railways.

The journey homewards up the west coast of South America provided an opportunity for short visits to places of much interest in several republics. I was particularly struck in the smaller places, such as Antofagasta in Chile and Buenoventura in Colombo, with the slums, small houses principally built of wood framing and completed with corrugated iron or broken-up kerosene tins, which were eloquent testimony to the difficulties connected with the preservation of public health in such places. On the other hand, there were always one or more cinemas, however small and primitive, and I was reminded of the possibilities for public-health propaganda which they might provide. If, for instance, instructional films could be shown to teach the people how to prevent malaria, cholera, typhoid, and other diseases, it could do nothing but good and might prove invaluable.

MORAL

This tour taught me that our confrères in other lands are only too anxious to be made familiar with the

British point of view and are eager to discuss the facilities for the visitor from overseas who steps into Britain's medical circles. I heard on every hand the general complaint that for the great majority of South American doctors the trip to England is much too costly. In Germany medical travel, at least for South Americans, is largely subsidised, and there are no tuition fees. There is the further advantage that the syllabus of the courses to be held is published long ahead, so that anyone contemplating such a visit will know what can be got in the way of lectures and demonstrations perhaps six months before the time of the proposed visit. Since the activities of the medical institutions in England are not available in a government or other central department, a foreigner is often at a loss to know to whom he is to apply for information, and the sooner we establish a central bureau of medical information the sooner will this defect be rectified.

PHARMACISTS AND THE SUPPLY OF MEDICINES TO EVACUEES AND OTHERS

THE Ministry of Health has explained to the Pharmaceutical Society that in omitting to consult the society before arranging with the B.M.A. for the treatment of evacuated children, including the supply of medicines, the ministry had no intention of interfering with the principle followed in national health insurance administration under which medicines are dispensed by pharmacists. The arrangement had to be made as speedily as possible and delay would have been caused had a third party been brought into the negotiations. Mr. Elliot does not consider it practicable to make new arrangements but he has undertaken to do what he can to facilitate the adoption of local agreements whereby medicines needed by the children will be supplied by pharmacists. In any future schemes the ministry intends to follow the usual procedure. Plans for the medical treatment of air-raid casualties which are now being prepared provide for payment to medical practitioners on a per capita basis and the supply of medicines by panel chemists; the amount of the medical-attendance fee has not yet been fixed, but the payment for medical supplies will be made through insurance committees. It would seem that on the other hand the scheme prepared by the War Office for the medical treatment of men serving in the forces, who are not in barracks or in camps where there is an army doctor, provides for their treatment by army doctors if available within two miles of the homes or billets and failing that by any civilian doctor the soldier may choose, the doctor to be paid by the War Office in accordance with a published scale of fees. This plan, like the scheme for the treatment of evacuated children, takes no cognisance of pharmacists.

ACTIVITIES OF THE INTERNATIONAL RED CROSS

COLLABORATION between the International Red Cross Committee in Geneva and the League of Red Cross Societies has been greatly facilitated by the transfer of the latter from Paris to Geneva last autumn. Early in September the International Red Cross Committee informed the governments and national red-cross societies of the belligerent countries that it proposed (1) to assume the responsibilities placed on it in regard to the treatment and exchange of the personnel of medical units, (2) to set up at Geneva a central agency for giving information concerning prisoners of war, (3) to promote as far as possible the advance adoption or enforcement of certain draft conventions whose expediency has already been recognised by the National Red Cross Societies, and (4) to create safety zones and districts without military objectives to shelter certain elements of the civilian population. On Sept. 14, the International Red Cross Committee decided to open a central agency for prisoners of war at Geneva. By Oct. 7 this agency had already become so well established that some 400 letters were being dealt with daily. Polish soldiers in field hospitals, English and French airmen in Germany, Polish submarine crews interned in Sweden, and Polish refugees of all categories in Roumania, Poland, Sweden, Slovakia and Yugoslavia were being helped by the agency. By Oct. 20, the average mail had increased to between 2000 and 3000 letters daily. Lists of prisoners of war arriving regularly from Berlin, London and Paris are photographed by the International Red Cross Committee, and prints are sent to the official information bureaux of the countries concerned. There are other lists from neutral sources concerning soldiers and civilians who have been interned.

THE TRICK OF THE GLOW-WORM

So far Berlin seems to be making more use of luminous paint in its blackout than London, for the Berliner is making his key-hole, bell-push and front gates glow in different colours, and carrying luminous discs on his person. Here luminous paint might well be used on lamp standards, pillar-boxes, Belisha beacons, and the unyielding structures erected by the electricity companies, so as to warn us of the proximity of such pavement obstructions.

A seventeenth-century Bolognese shoemaker called Cascariolo, with a taste for alchemy, was the first to discover that if he heated native barytes (barium sulphate) with charcoal the resulting impure barium sulphide glowed in the dark if it was first exposed to daylight. A hundred years later John Canton, F.R.S., found that calcium sulphide made by heating oyster shells with sulphur and charcoal possessed the same property. Their two inventions were called Bolognese and Canton's phosphorus, but no practical use seems to have been found for them. Since then it has been found that the sulphides of strontium and zinc also phosphoresce provided they are impure, the property depending on the presence of traces of other metals. Towards the end of the last century Balmain's luminous paint, made from calcium sulphide, was on sale, and similar paints began to be used on watches, clocks and compasses. By adding traces of bismuth, lead, manganese and so on the sulphide paints can be made to glow in various colours. During the last war luminous paints were improved by the addition of radio-active substances, radium or mesothorium being combined with zinc sulphide. A radium paint has the advantage of not needing to be exposed to light before use, and, although both sorts of paint become less luminescent in time, the half-decay period of a radium paint is a thousand years or so whilst for a sulphide it is only a few hours. The luminosity of the impure sulphides seems to be connected with instabilities in their crystalline state induced by light, or with disturbances in the surface electrons, but luminescence also accompanies some chemical reactions, mostly oxidations, at quite low temperatures, and it is a reaction of this kind that gives the glow to the glow-worm, the fire-fly and the marine animal *Noctiluca miliacea* which startles the night wanderer on the seashore, and the chemical changes induced in dead fish by bacteria may similarly brighten the night-life of the larder.

Mr. J. Hogarth Pringle, in response to the appeal from the regional commissioner, has presented the department of health for Scotland with his own collection of 300 surgical instruments. They will be kept intact for use at a Scottish emergency hospital and Mr. Pringle's name will be attached permanently to the collection.

Corrigendum.—In Dr. Lisle Punch's article in our issue of Jan. 6 (p. 4), the legend to fig. IV should read:

Radiograms showing opacity in right lower zone due to massive collapse of right middle lobe caused by obstruction of the bronchus by a plug of mucus (case 3): (*a*) antero-posterior; (*b*) lateral; (*c*) lateral bronchogram showing collapse of the right middle lobe; (*d*) lateral bronchogram after re-expansion of the middle lobe.